

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[AZ092-002; FRL-]

**Approval and Promulgation of Implementation Plans;
Arizona - Maricopa County PM-10 Nonattainment Area; Serious Area
Plan for Attainment of the 24-Hour PM-10 Standard
and Contingency Measures**

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA proposes to approve provisions of the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County (Phoenix) Nonattainment Area, February 2000, including the revisions submitted in June 2001 that address attainment of the 24-hour PM-10 national ambient air quality standard. We also propose to grant Arizona's request to extend the Clean Air Act deadline for attaining the 24-hour PM-10 standard in the Phoenix area from 2001 to 2006. Finally, we propose to find that the plan provides for the implementation of contingency measures for both the 24-hour and annual PM-10 standards and to make several revisions to our previous proposal on the MAG plan's provisions for the annual standard and our proposed policy on attainment date extensions for serious PM-10 nonattainment areas.

DATES: Comments on this proposal must be received in writing by [insert date 30 days after publication of this notice]. Comments

should be addressed to the contact listed below.

ADDRESSES: Comments should be mailed to: Frances Wicher, Office of Air Planning (AIR-2), EPA Region 9, 75 Hawthorne Street, San Francisco, CA 94105-3901.

A copy of docket No. AZ-MA-00-001, containing the EPA technical support document (EPA TSD) and other material relevant to this proposed action, is available for public inspection at EPA's Region 9 office during normal business hours.

A copy of the docket is also available for inspection at: Arizona Department of Environmental Quality, Library, 3033 N. Central Avenue, Phoenix, Arizona 85012. (602) 207-2217. Maricopa Association of Governments, 302 North 1st Street, Phoenix, Arizona 85003. (602) 254-6300.

Electronic Availability

This document and the Technical Support Document (TSD) are also available as electronic files on EPA's Region 9 Web Page at <http://www.epa.gov/region09/air>.

FOR FURTHER INFORMATION CONTACT: Frances Wicher, Office of Air Planning (AIR-2), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105. (415) 744-1248, email: wicher.frances@epa.gov.

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I. Summary of Today's Proposals

First, we propose to approve the provisions in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, February 2000, ("MAG plan") including revisions to that plan submitted in Maricopa County PM-10 Serious Area State Implementation Plan Revision, Agricultural Best Management Practices, June 2001, (collectively, "the Maricopa County serious area plan" or "the plan") that address attainment of the 24-hour PM-10 standard.¹ Our proposed actions are based on our initial determination that the Maricopa County serious area plan complies with the Clean Air Act's (CAA) requirements for serious PM-10 nonattainment area plans.

Specifically, we propose to approve the following elements of the plan as they pertain to the 24-hour standard:

- the demonstration that the plan provides for implementation of reasonably available control measures (RACM) and best available control measures (BACM),
- the demonstration that attainment by the CAA deadline of December 31, 2001 is impracticable,

¹ There are two separate national ambient air quality standards for PM-10, an annual standard of 50 µg/m³ and a 24-hour standard of 150 µg/m³. We proposed approval of the MAG plan's annual standard provisions on April 13, 2000 at 65 FR 19964.

- the demonstration that attainment will occur by the most expeditious alternative date practicable, in this case, December 31, 2006,
- the demonstration that the plan provides for reasonable further progress and quantitative milestones,
- the demonstration that major sources of PM-10 precursors such as nitrogen oxides and sulfur dioxide do not contribute significantly to air quality standard violations, and
- the transportation conformity budget.

Second, we are proposing to grant Arizona's request to extend the attainment date for the 24-hour PM-10 standard from December 31, 2001 to December 31, 2006. We make this proposal based on our determination that the State has met the CAA's criteria for granting such extensions.

Third, we propose to find that the plan provides for the implementation of contingency measures for both the 24-hour and annual standards as required by the CAA.

Finally, we make several revisions to our April 13, 2000 proposed approval of the annual standard provisions in the Maricopa County serious area plan. These revisions involve:

- clarifications to our proposed policy on granting attainment date extensions under CAA section 188(e),
- changes to Maricopa County Environmental Services Department's (MCESD) commitments to further improve its fugitive

dust rule, Rule 310,

- changes to several other control measures, and
- evaluation of the plan's compliance with the BACM

requirement and most stringent measure requirement in CAA section 188(e) for the agriculture source category based on the State's Agricultural Best Management Practices General Permit Rule.²

This preamble describes our proposed actions on the Phoenix area plan and provides a summary of our evaluation of the plan. Our detailed evaluation of the plan can be found in the technical support document that accompanies this proposal. See "Technical Support Document, Notice of Proposed Rulemaking on the Serious Area PM-10 State Implementation Plan for the Maricopa County PM-10 Nonattainment Area Provisions for Attaining the 24-Hour Standard and Contingency Measures," September 14, 2001 (EPA TSD). The EPA TSD is an integral part of this proposal and should be reviewed prior to making comments. A copy of the EPA TSD can be downloaded from our website or obtained by calling or writing the contact person listed above.

II. Background to Today's Proposals

A. PM-10 Air Quality in the Phoenix Area

The Maricopa County (Phoenix) PM-10 nonattainment area is

² Except for these limited number of revisions, we are not reopening the comment period and are not soliciting comments on our April 13, 2000 proposal.

located in the eastern portion of Maricopa County and encompasses the cities of Phoenix, Mesa, Scottsdale, Tempe, Chandler, Glendale as well as 17 other jurisdictions and considerable unincorporated County lands.³ 40 CFR §81.303. The area is home to almost 3 million people.

The area violates both the annual and 24-hour PM-10 standards. In 1990, the area was designated nonattainment for PM-10 and classified as moderate. In 1996, because of continuing violations of both PM-10 standards, the area was reclassified to serious and required to submit a serious area plan by December 10, 1997. 61 FR 21372 (May 10, 1996).

The principal contributors to elevated PM-10 levels in the Phoenix area are fugitive dust sources such as construction sites, unpaved roads, vacant lots, agricultural sources, and paved road dust. Also contributing to the PM-10 problem, but to a much lesser degree than fugitive dust, are internal and external combustion sources including directly-emitted PM-10 from automobiles, trucks, construction equipment, buses, residential woodburning and industrial, commercial, and residential use of natural gas and fuel oil. See MAG plan, p. 3-5.

There is a long and complex history to PM-10 air quality

³ The Maricopa nonattainment area also includes the town of Apache Junction in Pinal County. Apache Junction is covered by a separate air quality plan and will be addressed in a later action.

planning in the Phoenix area. A summary of this history can be found in the annual standard proposal at 65 FR 19964, 19965. A more detailed history can be found in section 1 of the EPA TSD.

B. Description of the MAG Plan's Provisions for Attaining the 24-Hour PM-10 Standard

Arizona has made several submittals to address the CAA requirements for serious PM-10 nonattainment area plans for the Phoenix area. The provisions for attaining the 24-hour PM-10 standard are found mainly in three of these submittals: the 1997 Microscale plan⁴, the 2000 MAG plan, and the 2001 Best Management Practices (BMP) submittal.⁵ The latter two documents are the subject of this proposal and are described in more detail below. We have already acted on the Microscale plan, see 62 FR 41856 (August 4, 1997). We describe this plan and explain its relationship to today's proposal in the next section.

The first submittal is the Revised Maricopa Association of Governments 1999 Serious Area Particulate Plan for PM-10 for the

⁴ The 1997 Microscale plan is the Plan for Attainment of the 24-hour PM-10 Standard - Maricopa County PM-10 Nonattainment Area, Arizona Department of Environmental Quality, May, 1997.

⁵ The other submittals contain rules and other control measures relied on to provide for RACM, BACM, reasonable further progress and attainment. These submittals include the commitments by local jurisdictions to PM-10 control measures submitted in December 1997, revised MCESD Rules 310 and 310.01 submitted in March 2000, Maricopa County's Residential Wood Burning Ordinance submitted in January 2000, and the Agricultural Best Management Practices (BMP) General Permit Rule submitted in July 2000.

Maricopa County Nonattainment Area, February 2000. This plan was developed by the Maricopa Association of Governments (MAG), the lead air quality planning agency in Maricopa County. The Arizona Department of Environmental Quality (ADEQ) submitted this plan as a revision to the Arizona State Implementation Plan (SIP) on February 16, 2000. We refer to this plan in this document as the MAG plan or the revised MAG plan; however, we occasionally use these terms to refer to the set of documents that collectively comprise the Maricopa County serious area PM-10 plan.

The second document is the Maricopa County PM-10 Serious Area State Implementation Plan Revision, Agricultural Best Management Practices, (BMP) June 2001, submitted in draft on April 26, 2001 and final on June 13, 2001. This SIP revision was developed by ADEQ. We refer to this submittal as the BMP TSD.

The MAG plan contains a 1994 inventory and uses the urban airshed model/limited chemistry version (UAM/LC) to model regional air quality in 1995 as a base year and in 2006 as the attainment year for both the annual and 24-hour standards. The MAG plan, however, relies primarily on air quality modeling performed in the Microscale plan to evaluate localized 24-hour exceedances.

The MAG plan, as revised by the BMP TSD, includes a BACM analysis and a demonstration that attainment by 2001 is impracticable for both the 24-hour and annual PM-10 standards.

It also includes, again for both PM-10 standards, the State's request for a five-year extension of the attainment date, a demonstration that the plan includes for the most stringent measures found in other states' plans, and a demonstration of attainment by December 31, 2006.

The BMP TSD updates the MAG plan to reflect the State's adoption of the Agricultural General Permit rule to control PM-10 from agricultural sources in Maricopa County. It includes a background document which provides the BACM demonstration for agricultural sources for both standards, a revised demonstration of attainment and reasonable further progress (RFP) for the 24-hour standard at two monitoring sites, and revisions to the contingency measure provisions for both standards. It also includes documentation quantifying emission reductions from the Agricultural General Permit rule and documentation related to implementing this rule.

C. Previous Actions on the Phoenix Serious Area PM-10 Plan

We have taken three actions related to the Phoenix Serious Area PM-10 plan: the proposed approval of the MAG plan's provisions for the annual standard, the partial approval/ partial disapproval of the 1997 Microscale plan, and the approval of Arizona's Agricultural BMP General Permit rule. With today's proposal, we have now proposed action on all elements of the Maricopa County serious area PM-10 plan.

1. Annual Standard Proposal

On April 13, 2000, we proposed to approve the MAG plan's provisions for attainment of the annual PM-10 standard. See 65 FR 19964.⁶ Specifically, we proposed to approve for the annual standard the provisions for implementation of RACM and BACM, the demonstration that attainment by 2001 is impracticable, the demonstration that attainment will occur by the most expeditious alternative date, the RFP demonstration, the quantitative milestones, and the conformity budget. We also proposed to grant an extension of the attainment date from 2001 to 2006 based on our proposed determination that Arizona had met the CAA criteria for granting such an extension.

In April 2000 preamble, we also proposed to approve the base year regional emissions inventory required by CAA section 172(c)(3), MCESD's Rules 310 and 310.01, Maricopa County's Residential Woodburning Ordinance, and the commitments by the cities, towns, and County of Maricopa, ADEQ, MAG, and other State and local agencies to implement various PM-10 control measures. These proposals were applicable to both the annual and 24-hour PM-10 standards and thus are not being repeated today.

2. Microscale Plan Partial Approval/Partial Disapproval

⁶ In the annual standard proposal and in the EPA TSD for today's proposal, we discuss the legal basis for separating the proposed approvals for the 24-hour and annual standards and the practical reasons we chose to do so. See 65 FR 19964, 19969 and section 3 of the EPA TSD. We intent, however, to finalize actions on both standards in a single rulemaking in early 2002.

The attainment demonstration for the 24-hour standard in the Maricopa County serious area plan has both a local modeling component and a regional modeling component. Portions of the local or microscale component are found in the Microscale plan, the 2000 MAG plan, and the BMP TSD. The regional component is contained completely within the 2000 MAG plan.

Most of the technical evaluation for the microscale component is contained in the Microscale plan which was submitted to us in May 1997. It evaluates exceedances of the 24-hour PM-10 standard at four Phoenix area monitoring sites: Salt River, Maryvale, Gilbert, and West Chandler.

This evaluation involved developing local, day-specific inventories and dispersion modeling to determine source contributions to exceedances at each site. The evaluation showed that the primary contributors to 24-hour exceedances in the Phoenix area are local fugitive dust sources such as construction sites, agricultural fields and aprons, vacant lots, unpaved roads and parking lots, and earthmoving operations. The Microscale plan also described the type of controls necessary to show attainment at each site although the plan only assured the implementation of such controls on construction-related sources.

We approved the Microscale plan in part and disapproved it in part on August 4, 1997 (62 FR 41856). We approved the attainment and RFP demonstrations for the Salt River and Maryvale

sites because the plan demonstrated expeditious attainment at these sites; however, we disapproved these demonstrations for the West Chandler and Gilbert sites because the plan did not demonstrate attainment at them. Because attainment demonstrations at the Salt River and Maryvale sites were already approved, ADEQ limited its subsequent microscale work to developing approvable demonstrations for the Gilbert and West Chandler sites. Our proposal today is also limited to these two sites.

To evaluate the provisions for the 24-hour PM-10 standard in the MAG plan, we are relying to a large extent on our previous evaluation of the Microscale plan. Except for the findings related to the implementation of BACM, we have not reevaluated the 24-hour standard provisions that we have already found adequate or approved as part of our actions on the Microscale plan.

More information on the Microscale plan can be found in section 1 of the EPA TSD and our proposed and final rulemakings on it. 62 FR 31025 (June 6, 1997) and 62 FR 41856 (August 4, 1997).

3. Arizona's Agricultural BMP General Permit Rule Approval

The analysis done for the Microscale plan revealed for the first time how significant a contribution agricultural sources make to exceedances of the 24-hour PM-10 standard in the Phoenix

area. See Microscale plan, pp. 18-19. In order to develop adequate controls for this source, Arizona passed legislation in 1997 establishing an Agricultural Best Management Practices (BMP) Committee and directing the Committee to adopt by rule by June 10, 2000, an agricultural general permit specifying best management practices for reducing PM-10 from agricultural activities. The legislation also required that implementation of the agricultural controls begin by June 10, 2000 with an education program and full compliance with the rule be achieved by December 31, 2001. See Arizona Revised Statutes (A.R.S.) 49-457.

In September 1998, the State submitted the legislation. On June 29, 1999, we approved it as meeting the RACM requirements of the CAA.⁷ 64 FR 34726.

While we approved the legislation as RACM, it was the State's intent that it also serve as BACM and MSM for

⁷ In 1998, we promulgated a moderate area PM-10 federal implementation plan (FIP) for the Phoenix area. 63 FR 41326 (August 3, 1998). One of the measures in this FIP was our commitment to adopt RACM for agricultural sources, RACM being the primary control requirement for moderate PM-10 nonattainment areas. Arizona submitted the BMP legislation in 1998 as, among other things, a substitute for our FIP RACM commitment. Before we could withdraw our FIP RACM commitment and replace it with the State's legislation, we had to first find that the legislation was at least RACM, hence our initial determination that it was at least RACM. For further information on this legislation and its relationship to the history of PM-10 planning in the Phoenix area, see the "Implementation of BACM and Inclusion of MSM for Agricultural Sources" section in the EPA TSD.

agricultural sources in the serious area PM-10 plan. Therefore, in our annual standard proposal, we evaluated and proposed to find that the legislation met the CAA BACM and MSM requirements for the agricultural source category. 65 FR 19964, 19981.

After a series of meetings during 1999 and 2000, the Agricultural BMP Committee adopted the agricultural general permit rule and associated definitions, effective May 12, 2000, at Arizona Administrative Code (AAC) R18-2-610, "Definitions for R18-2-611," and 611, "Agricultural PM-10 General Permit; Maricopa PM10 Nonattainment Area" (collectively, general permit rule). The State submitted the general permit rule in July 2000 and its analysis quantifying the emission reductions expected from the rule and the demonstration that the rule meets the CAA's RACM, BACM and MSM requirements in the June 2001 BMP TSD. We proposed to approve the rule as meeting the CAA requirement for RACM on June 29, 2001 and signed the final approval on September 10, 2001. See 66 FR 34598.

We are today withdrawing our proposed finding in the annual standard proposal that the State legislation provides for the implementation of BACM and MSM for agricultural sources for the annual standard. 66 FR 19964, 19981. In its place we are proposing to find that the General Permit rule provides for the implementation of BACM and MSM for agricultural sources for the annual standard. This proposal is based on our analysis,

summarized later, of the rule and the State's demonstrations in the BMP TSD and is in addition to our proposed finding that the rule provides for the implementation of BACM and MSM for the for the 24-hour standard.

III. The CAA's Planning Requirements for Serious PM-10

Nonattainment Areas

The Phoenix area is a PM-10 nonattainment area that has been reclassified to serious because it failed to attain by the moderate area attainment date of December 31, 1994. Such an area must submit, within 18 months of the reclassification, revisions to its implementation plan that address the CAA requirements for serious PM-10 nonattainment areas. CAA section 189(b)(2). These requirements are:

(a) assurances that the BACM, including best available control technology (BACT) for stationary sources, for the control of PM-10 shall be implemented no later than 4 years after the area is reclassified (CAA section 189(b)(1)(B));⁸

(b) assurances that BACT on major stationary sources of PM-10 precursors shall be implemented no later than 4 years after the area is reclassified except where EPA has determined that

⁸ When a moderate area is reclassified to serious, the requirement to implement RACM in section 189(a)(1)(C) remains and is augmented by the requirement to implement BACM. Thus, a serious area PM-10 plan must, in addition to BACM, provide for the implementation of RACM as expeditiously as practicable to the extent that the RACM requirement has not be satisfied in the area's moderate area plan.

such sources do not contribute significantly to exceedances of the PM-10 standards (CAA section 189(e));

(c) a demonstration (including air quality modeling) that the plan will provide for attainment as expeditiously as practicable but no later than December 31, 2001 or where the State is seeking an extension of the attainment date under section 188(e), a demonstration that attainment by December 31, 2001 is impracticable and that the plan provides for attainment by the most expeditious alternative date practicable (CAA sections 188(c)(2) and 189(b)(1)(A));

(d) quantitative milestones which are to be achieved every 3 years and which demonstrate reasonable further progress toward attainment by the applicable attainment date (CAA sections 172(c)(2) and 189(c)); and

(e) a comprehensive, accurate, current inventory of actual emissions from all sources of PM-10 (CAA section 172(c)(3)).

Serious area plan must also provide for the implementation of contingency measures if the area fails to make RFP or attain by its attainment deadline. These contingency measures are to take effect without further action by the State or the Administrator. CAA section 172(c)(9).

Serious area PM-10 plans must also meet the general requirements applicable to all SIPs including reasonable notice and public hearing under section 110(l), necessary assurances

that the implementing agencies have adequate personnel, funding and authority under section 110(a)(2)(E)(i) and 40 CFR 51.280; and the description of enforcement methods as required by 40 CFR § 51.111.

We have issued a General Preamble⁹ and Addendum to the General Preamble¹⁰ describing our preliminary views on how the Agency intends to review SIPs submitted to meet the CAA's requirements for PM-10 plans. The General Preamble mainly addresses the requirements for moderate areas and the Addendum, the requirements for serious areas.

IV. The MAG Plan's Compliance with the CAA's Requirements for Serious PM-10 Nonattainment Area

The following sections present a condensed discussion of our evaluation of the MAG plan's compliance with the applicable CAA requirements for attaining the 24-hour PM-10 standard. Our complete evaluation is found in the EPA TSD for this proposal. We strongly urge anyone wishing to comment on this proposal to first review the TSD before preparing comments. A copy of the

⁹ "State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," 57 FR 13498 (April 16, 1992) and 57 FR 18070 (April 28, 1992).

¹⁰ "State Implementation Plans for Serious PM-10 Nonattainment Areas, and Attainment Date Waivers for PM-10 Nonattainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," 59 FR 41998 (August 16, 1994)

TSD can be downloaded from our website or obtained by calling or writing the contact person listed above.

A. Completeness of the SIP Submittals

CAA section 110(k)(1)(B) requires us to determine if a SIP submittal is complete within 60 days of its receipt. This completeness review allows us to quickly determine if the submittal includes all the necessary items and information we need to take action on it. We make completeness determinations using criteria we have established in 40 CFR part 51, Appendix V.

We found ADEQ's February 16, 2000 submittal of the final revised MAG serious area PM-10 plan complete on February 25, 2000. See Letter, David P. Howekamp, EPA, to Jacqueline Schafer, ADEQ.

We also found ADEQ's June 13 2001 submittal of the BMP TSD complete on August 10, 2001. See letter, Jack Broadbent, EPA to Jacqueline Schafer, ADEQ.

B. Adequacy of the Transportation Conformity Budgets

CAA Section 176(c) requires that federally-funded or approved transportation plans, programs, and projects in nonattainment areas "conform" to the area's air quality implementation plans. Conformity ensures that federal transportation actions do not worsen an area's air quality or interfere with its meeting the air quality standards. We have issued a conformity rule that establishes the criteria and

procedures for determining whether or not transportation plans, programs, and projects conform to a SIP. See 40 CFR part 93, subpart A.

One of the primary tests for conformity is to show transportation plans and improvement programs will not cause motor vehicle emissions higher than the levels needed to make progress toward and meet the air quality standards. The motor vehicle emissions levels needed to make progress toward and meet the air quality standards are set in an area's attainment and/or RFP plans and are known as the "emissions budget for motor vehicles." Emissions budgets are established for specific years and specific pollutants. See 40 CFR 93.118(a).

Before an emissions budget in a submitted SIP revision can be used in a conformity determination, we must first determine that it is adequate. The criteria by which we determine adequacy of submitted emission budgets are outlined in our conformity rule in 40 CFR 93.118(e)(4). A finding of adequacy does not approve an emissions budget, it simply allows states to begin to use the budget in conformity determinations pending our action on the overall SIP.

The MAG plan establishes a mobile source emissions budget of 59.7 mtpd. This regional budget is applicable to both the annual and 24-hour PM-10 standards. The on-road mobile source portion of the budget, which includes emissions from reentrained road

dust, vehicle exhaust, and travel on unpaved roads, is 58.6 mtpd. The road construction dust portion of the budget is 1.1 mtpd. MAG plan, p. 8-13.

On March 30, 2000, we found adequate for transportation conformity purposes this motor vehicle emissions budget. Our adequacy finding is documented in section II of the EPA TSD for the annual standard. As a result of our adequacy finding, MAG and the Federal Highway Administration are now required to use this budget in all conformity analyses.

As discussed later in this preamble, we are proposing to approve both the attainment and reasonable further progress demonstrations for the 24-hour standard in the Maricopa County serious area PM-10 plan. The 59.7 mtpd budget is consistent with these demonstrations. We, therefore, propose to approve it as the motor vehicle emissions budget for the 24-hour PM-10 standard under CAA section 176(c).

C. Emissions Inventory

CAA section 172(c)(3) requires that nonattainment area plans include a comprehensive, accurate, and current inventory of actual emissions from all sources in the nonattainment area. To meet this requirement Arizona submitted a 1994 base year inventory as part of the MAG plan. See MAG plan, Appendix A, Exhibit 6. We proposed to approve this inventory as meeting the requirements of section 172(c)(3) in our proposal on the annual

standard provisions. See 65 FR 19964, 19970.

In the Phoenix nonattainment area, both regional and microscale modeling inventories are needed to accurately reflect the sources that are contributing to 24-hour PM-10 ambient levels. The regional modeling inventories were derived from the 1994 base year inventory and are the same for the annual and 24-hour standards. We proposed to find these regional modeling inventories to be acceptable as part of annual standard provisions. See 65 FR 19964, 19985-19986.

ADEQ developed microscale and subregional inventories for 1995 (the modeling base year) for the West Chandler and Gilbert microscale sites. See Microscale plan, Appendix A, Chapter 4 and MAG plan, Appendix C, Exhibit 3, Chapter 3. In the 1997 Microscale plan, ADEQ also developed 1995 inventories for the two other microscale sites, Maryvale and Salt River. See Microscale plan, Appendix A, Chapters 4 and 6. We evaluated the 1995 inventories for all four sites as part of our action on the overall Microscale plan. See 62 FR 31025, 31030 (June 6, 1997). These microscale inventories are specialized modeling inventory and is not intended to satisfy the CAA section 172(c)(3) requirement.¹¹

¹¹ The microscale inventories include only sources within a small area surrounding each monitor rather than all sources within the entire nonattainment area as requirement in CAA section 172(c)(3).

We discuss emissions inventories in this preamble and in the EPA TSD in order to present a complete technical review of the Maricopa County serious area plan's provisions for attainment of the 24-hour standard. Emissions inventories play a fundamental role in air quality modeling, and CAA section 189(b)(1)(A) requires attainment demonstrations in PM-10 serious area plan to be based on modeling. We cannot find this modeling, or the attainment demonstrations that are derived from it, approvable without first finding that the underlying emissions inventories are adequate. We are not, however, proposing any actions today on the inventories relied on in the Maricopa County serious area plan for demonstrating attainment of the 24-hour standard because, as discussed above, we have already either proposed to approve them or found them to be acceptable.

D. Adequate Monitoring Network

We discuss the adequacy of the monitoring network in this preamble solely to support our finding that the plan appropriately evaluates the PM-10 problem in the Phoenix area. Reliable ambient data is necessary to validate the base year air quality modeling which in turn is necessary to assure sound attainment demonstrations.

The CAA requires states to establish and operate air monitoring networks to compile data on ambient air quality for all criteria pollutants. Section 110(a)(2)(B)(i). Our

regulations in 40 CFR 58 establishes specific regulatory requirements for operating air quality surveillance networks to measure ambient concentrations of PM-10, including measurement method requirements, network design, quality assurance procedures, and in the case of large urban areas, the minimum number of monitoring sites designated as National Air Monitoring Stations (NAMS).

Ambient networks, however, do not need to meet all our regulations to be found adequate to support air quality modeling. A good spatial distribution of sites, correct siting, and quality-assured and quality-controlled data are the most important factors we consider when evaluating the monitoring network for air quality modeling. Nonattainment area plans developed under title I, part D of the Clean Air Act are not, in general, required to address how the area's air quality network meets our monitoring regulations. These plans are submitted too infrequently to serve as the vehicle for assuring that monitoring networks remain current.

The base year for the MAG plan is 1995. In 1995, there were 16 monitoring sites operated by either MCESD or ADEQ that collected PM-10 data in the Phoenix area, three designated as NAMS, five designated as state/local monitoring stations, and eight designated as special purpose monitors. All of the sites were operated in accordance with our regulations in 1995. Figure

3-2 in the MAG plan lists the names of the sites and their locations in the Phoenix area as of April 1999. Most of these PM-10 monitoring sites were sited as neighborhood scale with an objective of assessing population exposure. Given the nature of the emission sources in the Phoenix area, which are mostly local fugitive dust sources, we believe this is an appropriate focus of the network.

The 24-hour attainment demonstration in the MAG plan relies, in part, on showing attainment at four specific monitoring sites. These sites were chosen to evaluate the type and mix of sources thought to be contributing to elevated 24-hour PM-10 levels: Salt River for its proximity to industrial sources; West Chandler for its nearby highway construction; Maryvale for its residential area coupled with land disturbing activities due to the construction of a park, and Gilbert for its proximity to agricultural land. In 1995 these sites recorded the highest and most frequent exceedances of the 24-hour PM-10 standard. They are also representative of similar areas in the Phoenix area that may not have monitoring sites.

Based on our evaluation, we have concluded that the monitoring network operated by the MCESD and ADEQ in 1995 was adequate to support the air quality modeling in the MAG plan. The network utilized EPA reference or equivalent method monitors and both agencies have EPA-approved quality assurance plans in

place.

E. Contribution to PM-10 Exceedances of Major Sources of PM-10 Precursors

CAA section 189(e) requires a state to apply the control requirements applicable to major stationary sources of PM-10 to major stationary sources of PM-10 precursors, unless we determine such sources do not contribute significantly to PM-10 levels in excess of the NAAQS in the area. For the serious area plan, a major source is one that emits or has the potential to emit over 70 English tons per year (tpy) of sulfur oxides (SO_x), nitrogen oxides (NO_x), or ammonium.

PM-10 precursors react in the atmosphere to form secondary particulate, secondary because it is not directly emitted from the source. The MAG plan does not provide specific information on the impact of major precursor sources on Phoenix PM-10 levels; however, it does provide sufficient information on the contribution of total secondary particulates to PM-10 levels and the emissions from major precursor sources to estimate the impact.

We estimate that major stationary sources contribute at most 0.61 µg/m³ to 24-hour PM-10 levels in the Phoenix area. See EPA TSD section, "BACT for Major Stationary Sources of PM-10 Precursors." We estimated this contribution by assuming that the major stationary sources' contribution to secondary levels is

proportional to their presence in the inventory. We believe that this assumption is reasonable given the very small presence of major stationary sources in the precursor inventory and the small contribution total secondaries make to PM-10 levels in Phoenix. Moreover, secondary particulate takes hours to form in ambient air from its precursors. By the time secondary particulate is formed, the precursors are well mixed in the ambient air, so localized, disproportionate impacts by major sources of PM-10 precursors are very unlikely.

This contribution is well below our proposed 5 $\mu\text{g}/\text{m}^3$ significance level.¹² However, independent of this fact, we believe that so small a contribution--less than 0.4 percent of the 24-hour PM-10 standard of 150 $\mu\text{g}/\text{m}^3$ --is truly insignificant by any measure for the Phoenix area. PM-10 levels above the 24-hour standard in Phoenix are almost exclusively caused by a few large source categories of fugitive dust. It is controls on these sources that are the key to expeditious attainment and not controls on trivial contributors such as major stationary sources of PM-10 precursors.

Based on their negligible impact on ambient PM-10 levels, we propose to determine that major sources of PM-10 precursors do

¹² The MAG plan demonstrates that the 5 $\mu\text{g}/\text{m}^3$ is the appropriate level for determining which categories are significant for the BACM requirement for the 24-hour standard; therefore, we believe that it is an appropriate level for us to adopt here.

not contribute significantly to PM-10 levels which exceed the 24-hour standard in the Phoenix area; therefore, pursuant to CAA section 189(e), BACT need not be applied to major sources of PM-10 precursors.

F. Implementation of Reasonably Available and Best Available Control Measures

CAA section 189(b)(1)(B) requires that a serious area PM-10 plan provide for the implementation of BACM within four years of reclassification to serious. For Phoenix, this deadline is June 10, 2000. Under our applicable guidance, BACM must be applied to each significant area-wide source category. Addendum at 42011. As discussed in section V of this preamble, we have established a four-step process for evaluating BACM in serious area PM-10 plans.

1. Steps 1 and 2: Determination of significant sources

The first step in the BACM analysis is to develop a detailed emissions inventory of PM-10 sources and source categories that can be used in modeling to determine their impact on ambient air quality. Addendum at 42012. The second step is use this inventory in air quality modeling to evaluate the impact on PM-10 concentrations over the standards of the various sources and source categories to determine which are significant.

The development of the detailed emissions inventories is discussed in a preceding section. The MAG plan uses three

modeling studies of PM-10 sources in the Phoenix area to identify significant source categories. One of these studies evaluated significant sources using chemical mass balance (CMB) modeling performed on monitoring samples collected at 6 sites in 1989-1990. The two other studies evaluated significant sources using dispersion modeling of sources around 6 monitoring sites using data from 1992 through 1995.¹³

From these evaluations, the MAG plan identifies 8 significant source categories and 12 insignificant source categories. MAG plan, p. 9-6.

The final list of significant source categories in the MAG plan does not distinguish between those categories that are significant for the 24-hour standard and those that are significant for the annual standard; although previous studies have shown that some source categories are significant only for one or the other standard. Because the MAG plan does not distinguish significant source categories between the two standards, we treat each of the listed significant source categories as significant for the 24-hour standard.

For the 24-hour standard, the MAG plan demonstrates that its selection of significant source categories is appropriate by

¹³ These studies are "The 1989-90 Phoenix PM-10 Study", Desert Research Institute, April 1991; "Particulate Control Measure Feasibility Study," Sierra Research, January 1997; and the Microscale plan.

showing that controls on the de minimis source categories would not result in attainment of the 24-hour standard by 2001. For a detailed description of this demonstration, see MAG plan, pp. 9-12 to 9-15 and the EPA TSD section "BACM Analysis - Step 2, Model to Identify Significant Sources."¹⁴

The 8 significant source categories are:

1. Paved road travel
2. Unpaved road travel (includes unpaved parking lots)
3. Industrial paved road travel (paved and unpaved)
4. Construction site preparation (includes disturbed vacant lots that are not undergoing construction)
5. Agricultural tilling (includes all agricultural sources)
6. Residential wood combustion
7. On-road and non-road motor vehicle exhaust

¹⁴ In this de minimis demonstration, certain source categories--vacant land, unpaved roads, agricultural sources, and unpaved parking--were assumed to be uncontrolled at the end of 2001. See MAG plan, Tables 9-b and 9-c. These categories will in fact be subject to BACM by then. By not including controls on these categories in the de minimis demonstration, the gap between nonattainment and attainment of the 24-hour standard in 2001 is much larger than it should be and thus, the de minimis determination for the 24-hour standard is suspect.

To check if the selected de minimis categories are truly de minimis under the correct control assumptions, we redid the determination incorporating the appropriate level of control for each source category. We concluded from this reanalysis that the MAG plan's selected de minimis threshold is in fact appropriate and the identified de minimis categories are indeed de minimis and are appropriately excluded from the BACM analysis. See EPA TSD, section "BACM Analysis - Step 2, Model to Identify Significant Sources."

8. Secondary ammonium nitrate

MAG Plan, Table 9-1.

The 12 de minimis source categories are:

1. Stationary point sources
2. Fuel combustion (excluding residential wood combustion)
3. Waste/open burning
4. Agricultural harvesting
5. Cattle feedlots
6. Structural/vehicle fires
7. Charbroiling/frying meat
8. Marine vessel exhaust
9. Airport ground support exhaust
10. Railroad locomotive exhaust
11. Windblown from fluvial channels
12. Wild fires

MAG plan, Table 9-a. The plan notes that several de minimis source categories (e.g., stationary point sources, waste/open burning, agricultural harvesting, charbroiling) are already subject to control or will be controlled in the future. MAG plan, p. 9-12.

We propose to find that the MAG plan has not excluded any source categories that should be considered significant from its list of significant source categories. The plan presents acceptable modeling to evaluate the impact of various PM-10

sources and source categories on PM-10 levels and to derive a comprehensive and conservative list of significant source categories.

2. Step 3: Identification of potential BACM

In preparing the list of candidate BACM, MAG reviewed our guidance documents on BACM, other EPA documents on PM-10 control, as well as PM-10 plans from other serious PM-10 nonattainment areas in the western United States. MAG also evaluated controls proposed during public comment. MAG plan, pp. 9-24 through 9-29; MAG Plan, Appendix D, Exhibit 1, "Response to Public Comments, January 31, 2000 Public Hearing"; and BMP TSD, pp. 9 through 27.

The MAG plan appropriately screened the list of candidate BACM to eliminate measures that did not apply to significant source categories in the area, were technologically infeasible for the area because they would not reduce PM-10 emissions, or duplicated other measures on the list. The plan also provides cost effectiveness estimates for each of the candidate BACM. MAG plan, pp. 9-30 through 9-39; and BMP TSD, pp. 9 through 27.

We propose to find that the Maricopa County serious area PM-10 plan identified and evaluated potential BACM for the Maricopa area consistent with our guidance. As we will discuss below in our evaluations of the implementation of BACM for each significant source category, we do not believe that the plan left out any candidate BACM. Overall, the plan presents one of the

most comprehensive lists of potential BACM ever produced.

3. Step 4: Implementation of RACM and BACM and inclusion of MSM for each significant source category

In the following sections, we review the results of the Maricopa County serious area plan's BACM analysis. To present these results, we have grouped the emission generating activities that comprise the MAG plan's significant categories slightly differently from the plan, e.g., we have addressed separately construction activities and disturbed vacant lands which are both included in the MAG plan's significant category of construction site preparation.¹⁵ We have done this to make our evaluations of the plan's provisions for the implementation of BACM and inclusion of MSM clearer and thus, we believe, more understandable. However, despite the method of presentation, we have addressed the MAG plan's provisions for implementing RACM and BACM for each of the plan's significant source categories.

Also, because of the substantial overlap in the source categories and controls evaluated for BACM and those evaluated for MSM, we present our evaluation of the MAG plan's provisions for including MSM alongside our evaluation of the provisions for implementing RACM and BACM for each significant source category.

Controls on a number of significant source categories are

¹⁵ MAG plan uses this grouping despite the fact that disturbed vacant lands include lands that are disturbed for reasons other than construction activity.

in MCESD's fugitive dust rules, Rule 310 and Rule 310.01. MCESD has made extensive commitments to improve compliance and enforcement of these rules to assure that they achieve the emission reductions necessary for expeditious attainment. These commitments are an important component of our proposed finding that the MAG plan provides for implementation of RACM and BACM and inclusion of MSM. We discuss them at the end of this section.

As discussed above, the MAG plan made no distinction between significant sources for the annual standard and those for the 24-hour standard and, as a result, it made no distinction between BACM and MSM for the annual standard and those for the 24-hour standard. We have already extensively reviewed the MAG plan's BACM and MSM provisions for the annual standard and these reviews are applicable to the 24-hour standard. Thus, except for clarifying and/or updating information on a few measures, we have not revised our evaluations of BACM and MSM for most of the significant source categories. Four categories--on-road engines (technology controls), nonroad engines, unpaved roads and construction dust--have undergone moderate changes.

Our analysis of the agricultural source category has changed substantially from the annual standard proposal. As discussed above, we based our review in the annual standard proposal on the State's legislation requiring the adoption of measures for

agriculture. Since then, the State has adopted the agricultural general permit rule and has submitted revisions to the Maricopa County serious area plan containing the demonstration that the general permit rule represents BACM and MSM. For today's proposal, we have based our review of BACM and MSM for the agricultural sources on the general permit rule and the State's additional documentation. Our revised analysis applies to both the annual and 24-hour standards.

a. Technology controls for on-road motor vehicle exhaust

This category includes tailpipe and tire wear emissions of primary PM-10 from on-road motor vehicles. On-road motor vehicles include both gasoline and diesel-powered passenger cars, light, medium, and heavy duty trucks, buses, and motorcycles.

The suggested technology-based measures for controlling emissions from on-road motor vehicle exhaust fall into one of five categories: new emission standards, inspection and maintenance (I/M) programs, fuels, programs to encourage alternative fueled vehicle usage, and programs to accelerate fleet turnover. In total, the MAG plan considers 22 technology-based control measures. See MAG plan, Table 5-2. We believe this list is complete and propose to find that the MAG plan evaluates a comprehensive set of potential technology-based controls for on-road motor vehicle exhaust emissions including the potentially most stringent measures from other states.

For gasoline vehicles, Arizona has implemented one of the nation's best and most comprehensive enhanced I/M programs including expanding the program to areas surrounding Phoenix; has adopted its own Cleaner Burning Gasoline program which mandates the use of either Phase II federal reformulated gasoline or California reformulated gasoline; and mandates federal, state, county, and municipal governments to convert their fleets to alternative fuels. MAG plan, pp. 7-2 through 7-24.

Arizona has instituted a heavy-duty diesel I/M program, will require pre-1988 HDDV registered in the Phoenix nonattainment area to meet 1988 federal emission standards starting in 2004, has established a voluntary vehicle repair and retrofit program to encourage retrofitting and overhaul of heavy duty diesel engines to reduce emissions, and has limited diesel sulfur content to 500 parts per million (ppm). MAG plan, Chapter 7.

As noted before, Arizona has in place a comprehensive programs to address on-road motor vehicle emissions. With the additional measures in the MAG plan (including a more stringent diesel I/M program and measures both encouraging and requiring diesel fleet turnover), the overall mobile source program is strengthened and goes beyond the existing program. Both strengthening and expanding existing programs are key criteria for demonstrating the implementation of BACM. See Addendum at 42013. Where the MAG plan has rejected potential BACM, it

provides a reasoned and acceptable justification for the rejection. See EPA TSD, Table ORM-3 in the section "Implementation of BACM and MSM for On-Road Motor Vehicle Exhaust and Paved Road Dust (Technology Standards and Fuels)."

The MAG plan identified just a few measures from other areas as potential MSM. These measures have either been adopted or we have concluded that the measure need not be included to assure the inclusion of MSM.

The California Air Resources Board's diesel fuel standards (CARB diesel) is one of the few identified motor vehicle controls not adopted by the State.¹⁶ The plan identifies this measure as a potential MSM. MAG plan, Table 10-7. The MAG plan claims that the measure is unreasonable on a cost basis. MAG plan, p. 9-46.

Based on information in the Microscale plan, emissions from on-road motor vehicle are not implicated in 24-hour exceedances in the Phoenix area. Microscale plan, pp. 17-19. All currently available evidence is that 24-hour exceedances are caused by local fugitive dust sources and controls on these sources alone will result in the earliest practicable date for attainment of

¹⁶ Arizona has already adopted half of the CARB diesel standards, the 500 ppm sulfur limit. The other CARB diesel standard is a limit on the aromatic hydrocarbon content of no more than 10 percent by volume. CARB, Fact Sheet on California Diesel Fuel, March 1997. Also, in January 2001, we established a new diesel fuel sulfur limit of 15 ppm as part of our overall program to control emissions from heavy duty diesel vehicles. The new limit which will apply to Arizona will be fully in place by September, 2006. 66 FR 5002 (January 8, 2001).

the 24-hour PM-10 standard in the Phoenix area. Microscale plan, pp. 17-19. Because implementation of CARB diesel would not result in earlier attainment and thus unnecessary for expeditious attainment, we propose to find that the MAG plan provides for the inclusion of MSM to our satisfaction absent the adoption and implementation of CARB diesel.

Except for one, all the adopted BACM and MSM were implemented by June 10, 2000, the BACM implementation deadline for the Phoenix area. The exception is the requirement that pre-1988 heavy duty diesel vehicles registered in the nonattainment area meet 1988 federal emission standards. This measure will not be fully implemented until January 1, 2004 in order to provide sufficient lead time for modification or replacement of the non-complying heavy duty diesel vehicles.

We, therefore, propose to find that the combination of on-road motor vehicle technology controls and transportation control measures (described in the next section) in the MAG plan provides for the implementation of RACM and BACM and the inclusion of MSM for on-road motor vehicle exhaust for the 24-hour standard.

Since the annual standard proposal was published in April 2000, changes have been made to two on-road motor vehicle controls that were included in that proposal: the remote sensing (RSD) program in the State's vehicle emissions inspection program (VEIP) and changes to the State's incentives for purchase of

alternatively-fueled vehicles or conversions to alternatively-fueled vehicles.

In 2000, the Arizona legislature converted the RSD program from a regulatory program to a pilot program because of its high cost per ton of emissions reduced¹⁷. In July 2001, Arizona submitted a SIP revision that included all changes to State's VEIP program that had been made since we last approved it in 1995, including the changes to the RSD program. 2001 I/M SIP submittal, p. 26. We consider this I/M program submittal to be Arizona's current statement of what elements constitute its VEIP.

The RSD program is not credited in the RFP or attainment demonstrations for the annual standard. The State justifies its revision to this program based on the implementation cost of the unrevised program, that is, they have determined that the unrevised program was economically infeasible. We believe that this change to the overall on-road motor vehicle control program in the MAG plan do not adversely affect our previously proposed finding that the plan provides for the implementation of RACM and BACM and the inclusion of MSM for this source category for the annual standard found at 65 FR 19964, 19972.

b. Transportation control measures (TCMs) for on-road motor vehicle exhaust and paved road dust

¹⁷ ADEQ, Final Arizona State Implementation Plan Revision, Basic and Enhanced Vehicle Emissions Inspection/Maintenance Program, June 2001 ("2001 I/M SIP submittal"), p. 26.

TCMs can reduce PM-10 emissions in both the on-road motor vehicle exhaust and paved road dust source categories by reducing vehicle miles traveled (VMT) and vehicle trips (VT). They can also reduce vehicle exhaust emissions through relieving congestion. Our serious area PM-10 guidance requires that plans identifying on-road motor vehicles as a significant sources must also evaluate the TCMs listed in section 108(f) of the CAA. Addendum at 42013.

In our review, we have primarily assessed the MAG plan's provisions for implementing RACM and BACM and including MSM through TCMs based on the measures' effectiveness in controlling directly-emitted PM-10 from vehicle exhaust. We have not assessed the plan based on the TCMs' potential benefit in controlling PM-10 precursors such as NO_x and SO_x because 1) from available ambient measurements, neither nitrates nor sulfates are important to overall 24-hour PM-10 concentrations in the Phoenix area (See EPA TSD section, "BACT for Major Stationary Sources of PM-10 Precursors" which shows that total secondary particulates from all sources have a maximum impact of 9.2 µg/m³ in 1995) and 2) Arizona has already targeted mobile source NO_x and SO_x through an aggressive set of mobile source controls which we believe cover the implementation of RACM and BACM and inclusion of MSM requirements for tailpipe NO_x and SO_x. See discussion immediately above on technology controls for on-road motor

vehicle exhaust.

In total, the MAG plan identifies 19 TCMs for consideration, including the CAA section 108(f) measures. The plan does not identify any potential most stringent TCMs from other areas. See EPA TSD section "Implementation of BACM and MSM for On-Road Motor Vehicle Exhaust and Paved Road Dust (TCMs)." We believe that this list is complete and propose to find that the MAG plan evaluates a comprehensive set of potential TCMs for on-road motor vehicle exhaust emissions and the potential MSM from other States.

Arizona has a long history of adopting and then enhancing programs to reduce emissions from on-road motor vehicles by reducing VMT, VT, and/or congestion.¹⁸ The area has an employer trip reduction ordinance which applies to employers of 50 or more, a public outreach program to encourage people to reduce driving, programs to improve bicycling and pedestrian travel, and an extensive program to synchronize traffic lights. In most instances, these programs were adopted and implemented as part of carbon monoxide and ozone control programs, but they also reduce PM-10.

With the additional measures in the MAG plan (including additional traffic light synchronization, transit improvements,

¹⁸ These plans include the MAG moderate and serious area carbon monoxide plans and MAG moderate area ozone plan.

and bicycle and pedestrian facility improvements), the overall TCM program is strengthened and goes beyond the existing program. See EPA TSD, Table TCM-3 in section "Implementation of BACM and MSM for On-Road Motor Vehicle Exhaust and Paved Road Dust (TCMs)." Both strengthening and expanding existing programs are key criteria for demonstrating the implementation of BACM. See Addendum at 42013. Where the MAG plan has rejected potential BACM, it provides a reasoned and acceptable justification for the rejection.

All the adopted TCM BACM were implemented by June 10, 2000, the BACM implementation date for the Phoenix area, or have on-going implementation schedules because they are part of an on-going capital improvement program (e.g., signal synchronization).

We propose to find that the combination of on-road motor vehicle technology controls (described in the previous section) and TCMs in the MAG plan provides for the implementation of RACM and BACM and inclusion of MSM for on-road motor vehicle exhaust. We also propose to find that the combination of TCMs and paved road dust measures (described in the paved road section later in this preamble) provides for the implementation of RACM and BACM and the inclusion of MSM for paved road dust.

c. Nonroad engines

The nonroad engine category covers a diverse collection of engines, equipment and vehicles fueled by gasoline, diesel,

electric, natural gas, and other alternative fuels, including outdoor power equipment, recreational equipment, farm equipment, construction equipment, lawn and garden equipment, and marine vessels.

The suggested measures for controlling emissions from nonroad engines fall into one of four categories: new emission standards, programs to accelerate fleet turnover, programs affecting usage, or fuels. In total, the MAG plan evaluates 8 measures in addition to clean fuels measures for reducing PM-10 emissions from nonroad engines. We believe that this list is complete and propose to find that the MAG plan evaluates a comprehensive set of potential measures for nonroad engines including the potential most stringent measures from other States.

We have adopted national emission standards for a broad range of nonroad engines. We consider that these standards, which apply to nonroad engines sold in Arizona constitute at minimum a RACM-level program for controlling emissions from nonroad engines. The CAA preempts all states, except for California, from setting independent nonroad emission standards. CAA section 209(e). Other states, however, may adopt regulations identical to California's regulations, provided they notify us and give appropriate lead time, 2 years, for implementation. CAA section 209(e)(2)(B).

Arizona legislation allows ADEQ to adopt certain California nonroad engine standards. MAG plan, p. 7-42. ADEQ originally committed to adopt these California nonroad standards; however, subsequently, we adopted federal nonroad engine standards that will achieve essentially the same PM-10 reductions in the Phoenix area that adoption of the California ones would. As a result, Arizona determined that adoption of the California standards would not justify the resources ADEQ would need to expend to adopt, implement, and enforce them and has now withdrawn its commitment. See letter, Jacqueline E. Schafer, ADEQ, to Laura Yoshii, EPA, "Justification for not implementing CARB Off-road engine standards for the Maricopa County PM-10 SIP," September 7, 2001 ("ADEQ Off-Road Letter").

Arizona has adopted and implemented a year-around Cleaner Burning gasoline program and limits on the sulfur content of diesel fuels. With the addition of these measures, the overall nonroad engine program is strengthened and goes beyond the existing federal program. See EPA TSD section "Implementation of BACM and Inclusion of MSM for Nonroad Engines." Both strengthening and expanding existing programs are key criteria for demonstrating the implementation of BACM. See Addendum at 42013. Where the MAG plan has rejected potential BACM, it provides a reasoned justification for the rejection.

The MAG plan identifies CARB diesel as a potential MSM for

nonroad engines but does not adopt it. MAG plan, Table 10-7.

The plan identifies this measure as a potential MSM. MAG plan, Table 10-7. The MAG plan claims that the measure is unreasonable on a cost basis. MAG plan, p. 9-46.

Based on information in the Microscale plan, emissions from nonroad engines are not implicated in 24-hour exceedances in the Phoenix area. Microscale plan, pp. 17-19. All currently available evidence is that 24-hour exceedances are caused by local fugitive dust sources and controls on these sources alone will result in the earliest practicable date for attainment of the 24-hour PM-10 standard in the Phoenix area. Microscale plan, pp. 17-19. Because implementation of CARB diesel would not result in earlier attainment and thus unnecessary for expeditious attainment, we propose to find that the MAG plan provides for the inclusion of MSM to our satisfaction absent the adoption and implementation of CARB diesel.

We, therefore, propose to find that MAG plan provides for the implementation of RACM and BACM and inclusion of MSM for nonroad engines.

d. Paved road dust

Paved road dust is the largest source of PM-10 in the Maricopa area. It is fugitive dust that is deposited on a paved roadway and then is re-entrained into the air by the action of tires grinding on the roadway. Dust is deposited on the roadway

from being blown onto the road from disturbed areas; tracked onto the road from unpaved shoulders, unpaved roads, or other unpaved access points; stirred up from unpaved shoulders by wind currents created from traffic movement; spilled onto the road by haul trucks; and carried onto the road by water runoff or erosion.

The suggested measures for controlling emissions from paved road dust fall into one of three categories: reductions in VMT and VT, preventing deposition of material onto a roadway, and cleaning material off the roadway. We have already discussed measures for reducing VMT and VT in the section on TCMs above.

The MAG plan lists several potential BACM for paved road dust. It also lists a number of potential MSM from other areas. We believe these lists are complete and propose to find that the MAG plan evaluates a comprehensive set of potential controls for paved road dust including the potential MSM from other States.

Prior to the MAG plan, the cities and towns in the Phoenix area and Maricopa County implemented a number of measures addressing paved road dust. See MAG plan, Table 10-5. With the additional measures in the MAG plan (described below), the overall control program to reduce paved road dust is both strengthened and expanded beyond the existing program. See EPA TSD section "Implementation of BACM and Inclusion of MSM for Paved Road Dust." Both strengthening and expanding existing programs are key criteria for demonstrating the implementation of

BACM. See Addendum at 42013.

For the potential MSM, the MAG plan shows that these measures are either adopted or are not in fact more stringent than existing Phoenix area programs.

With the exception of the PM-10-efficient street sweepers measure described below, all the adopted BACM for paved roads were implemented by June 10, 2001, the BACM implementation deadline for the Phoenix area, or have on-going implementation schedules because they are part of an on-going capital improvement program, e.g., curbing. For the reasons discussed below, we propose to find that the MAG plan provides for the implementation of the PM-10 efficient street sweeper measures, a MSM, as expeditiously as practicable, consistent with our proposed MSM policy.

We, therefore, propose to find that the MAG plan provides for the implementation of RACM and BACM and for the inclusion of MSM for paved road dust.

Preventing deposition of material onto a roadway

Measures aimed at preventing track out on a paved road include treating unpaved access points, preventing track out from construction/industrial sites, treating shoulders on paved roads, controlling emissions during material transport (e.g., truck covers, freeboard requirements), and preventing erosion onto paved roads.

The MAG plan includes each of these measures.

Unpaved access points: In the MAG moderate area plan, local jurisdictions focused on requiring new connections to public paved streets to be paved. MAG plan, p. 9-74. In the serious area plan, the focus has shifted to addressing existing unpaved access points in addition to preventing new unpaved access points while maintaining the previous programs. Most public entities committed to stabilize unpaved access points when a connecting road is built, improved or reconstructed. See, for example, Glendale Commitment, "Reduce Particulate Emissions from Unpaved Shoulders and Unpaved Access Points on Paved Roads." Some cities have made explicit commitments for stabilizing existing access points without this prerequisite, such as Gilbert and Mesa. We also anticipate that routine city/town/County road paving and stabilization projects will result in controlling a number of existing unpaved access points. These projects combined with increased enforcement of track-out restrictions and additional PM-10 efficient street sweeping efforts should reduce paved road emissions attributable to unpaved access points.

The only potential MSM that the MAG plan identifies for unpaved access points are track out control requirements for construction sites. See MAG plan, Table 10-7. We discuss these measures in the next section.

Track out. MCESD Rule 310, sections 308.2(c) and 308.3 address

dirt track out from construction/industrial sites requiring all work sites that are five acres or larger and all work sites where 100 cubic yards of bulk materials are hauled on-site or off-site each day to control and prevent track out by installing a track out control device. The rule also requires all work sites to clean up spillage or track out immediately when it extends a cumulative distance of 50 linear feet or more and, where track out extends less than 50 feet, to clean it up at the end of the work day.

The MAG plan identifies, as a potential MSM for track out, South Coast (Los Angeles area) Air Quality Management District's (South Coast AQMD) Rule 403. MAG plan, Table 10-7. The plan concludes that the two rules are reasonably similar in several respects, and where differences exist, the relative impacts on control roughly balance each other out. MSM Study, p. C-4.¹⁹ We agree. Both rules emphasize prevention and rapid removal of track out. See EPA TSD section "Implementation of BACM and Inclusion of MSM for Paved Roads Dust," Note 2.

Unpaved Road Shoulders. As with unpaved access points, the MAG plan demonstrates a shift to dealing with existing unpaved shoulders from simply preventing new ones. MAG plan, Table 9-11. Maricopa County has committed to treat 100 miles of shoulders

¹⁹ The "MSM Study" is the "Most Stringent PM-10 Control Measure Analysis," Sierra Research, May 13, 1998 found in Appendix C, Exhibit 4 of the MAG plan.

along existing paved arterial and collector roadways with high volume truck traffic by 2003, in addition to its annual capital improvement projects for paving or treating unpaved shoulders. Maricopa County commitment, 1999 revised measure 5. Other jurisdictions have also made commitments to treat shoulders. The commitments are set depending on the resources available to each jurisdiction to implement them.

A.R.S. 9-500.04(3) and 49-474.01(4), adopted by the State legislature in 1998, require the cities, towns and County of Maricopa to develop and implement plans to stabilize targeted unpaved roads and alleys and to stabilize unpaved shoulders on targeted arterials beginning January 1, 2000. Although this legislation does not specify how many shoulder miles to be controlled, we believe that the local jurisdictions' efforts to meet this new legislation will result in the control of unpaved shoulders where it is most needed.

Material Transport. Requirements for the control of PM-10 emissions during material transport are found in MCESD Rule 310, sections 308.1 and 308.2. When hauling material off-site onto paved public roadways, sources are required to: 1) load trucks such that the freeboard is not less than three inches; 2) prevent spillage; 3) cover trucks with a tarp or suitable enclosure; and 4) clean or cover the interior cargo compartment before leaving a site with an empty truck.

The MAG plan identifies requirements for bulk material transport in Imperial County (California) Regulation VIII as a potential MSM. MAG plan, Table 10-7. The plan concludes that MCESD's rule is equally stringent. We agree because Rule 310's requirements for bulk material transport/hauling are essentially the same as Imperial County's requirements.

Cleaning material off the roadway

Measures for cleaning material off roadways are track out, erosion, and spill removal requirements and road sweeping.

The MAG plan includes each of these measures:

Material spillage, erosion, or accumulation. MCESD Rule 310, section 308.2 and 308.3 address rapid clean up of track out from construction/industrial sites. Rule 310.01, section 306 requires property owners/operators to remediate erosion-caused deposits of bulk materials onto paved surfaces. Erosion-caused deposits are to be removed within 24 hours of their identification or prior to resumption of traffic on the pavement.

The MAG plan identifies South Coast AQMD's Rule 1186 and Mojave Desert (San Bernadino, California) AQMD's Rule 403 as potential MSMDs for material spillage, erosion, and accumulation onto roadways. MAG plan, Table 10-7. In both cases, the plan concludes that MCESD's rules are more stringent. We agree. MCESD's rules require the clean up of more incidences of spillage, etc. than does either the South Coast or Mojave Desert

rule. See EPA TSD, "Implementation of BACM and Inclusion of MSM for Paved Roads," Note 5.

Street sweeping. Most cities/towns and the County have on-going street sweeping programs with variable sweeping frequencies.

With some exceptions, public entities implementing this measure have not explicitly committed to increase their existing sweeping frequencies. Phoenix, for example, approved a program in 1996 to increase the frequency of residential street sweeping to match the uncontained trash pick-up schedule. Phoenix commitment, measure 97-DC-5. However, sweeping frequency is appropriately evaluated in combination with other paved road measures because the emission-reducing potential of increased sweeping frequency is closely associated with other factors. These factors include whether the sweepers currently in use are PM-10 efficient (such that the act of sweeping does not cause increased emissions) and whether the public entity has identified roads that tend to experience higher silt loadings where more frequent sweeping is likely to make an appreciable difference in PM-10 emissions. Because sweeping frequency is among the criteria included in MAG's PM-10 efficient street sweeper solicitation (see below), we believe this measure is largely incorporated into MAG's new program.

The MAG plan identifies as a MSM the PM-10 efficient street sweeping provisions in South Coast Rule 1186. MAG plan, Table

10-7. However, the plan's analysis pre-dates MAG's commitment for the purchase and distribution of PM-10 efficient street sweepers and is no longer current.

The MAG plan includes commitments by MAG, cities, towns and the County for the purchase and use of PM-10 efficient street sweepers. This commitment involves the allocation of \$3.8 million in Congestion Mitigation and Air Quality (CMAQ)²⁰ funds for the FY 2000-2004 Transportation Improvement Program (TIP) to purchase PM-10 certified street sweepers for the local jurisdictions to use. MAG has recommended an additional \$1.9 million in CMAQ funds be allocated to purchase PM-10 certified street sweepers in the FY 2001-2005 TIP. See MAG commitment, "PM-10 Efficient Street Sweepers."

The funds allocated by MAG for this program should be sufficient to replace approximately two-thirds of the 72 existing city/town/County street sweepers.²¹ Each fiscal year in which CMAQ funds are allocated for street sweepers, MAG will solicit requests for funding from cities, towns and the County in the PM-10 nonattainment area. Funding requests must identify by facility type (i.e. freeway, arterial/collector, local) the

²⁰ CMAQ funds are federal transportation funds awarded to certain nonattainment areas for congestion management or air quality-transportation projects such as paving unpaved roads.

²¹ Some street sweepers may be additions to, as opposed to replacements of, existing equipment.

number of centerline miles to be swept with the PM-10 certified units, expected frequency of sweeping, and average daily traffic (if available).²² MAG will use this information to estimate the emission reductions associated with each sweeper request and rank the requests in priority order of effectiveness for consideration in the allocation of CMAQ funds. See MAG commitment, "PM-10 Efficient Street Sweepers."

In evaluating this program, we considered not only the number of PM-10 efficient street sweepers to be purchased and distributed, but whether the program incorporates use factors that influence emissions reductions. The greatest emissions reduction benefit for this mitigative measure will be achieved if the sweepers are used on a frequent basis on-roads with high silt loadings or significant visible accumulations.

Each public entity has a monetary incentive to compete for the PM-10 efficient street sweepers, as the program is funded by MAG with a low cost share (5.7 percent) requirement. Also, the new street sweepers will either replace existing city-owned street sweeping equipment or contracted out services, or be added to existing street sweeper equipment/services. MAG's selection process includes PM-10 emissions reduction potential, based on the types of roads each jurisdiction is targeting for sweeping

²² See MAG, "Methodology for Evaluating Congestion Mitigation and Air Quality Improvement Projects," Draft Revised, June 21, 2001, pp. 18 - 22.

and how frequently they will be swept. This data will assist MAG in distributing the street sweepers to local jurisdictions in a way that maximizes the regional air quality benefits of the program. In addition, when the cities/towns/County are awarded PM-10 efficient street sweepers, their submittals will incorporate use factors that maximize emission reductions from this measure.

We believe that implementation of the PM-10 efficient street sweeper program will be implemented as expeditious as practicable. The funding necessary to purchase this equipment is available only over the course of several fiscal years and the purchase of the PM-10 efficient street sweepers can only proceed at the rate these funds become available.

South Coast's Rule 1186 requires any government or government agency which contracts to acquire street sweeping equipment or services for routine street sweeping on public roads that it owns and/or maintains, where the contract date or purchase or lease date is January 1, 2000 or later, to acquire or use only certified street sweeping equipment. The rule establishes street sweeper testing and certification procedures. Unlike Maricopa's strategy, Rule 1186 requires that PM-10 efficient street sweepers be used whenever street sweeping is contracted out as of January 2000, and it requires public agencies to replace their existing street sweeping equipment with

PM-10 efficient equipment only as they replace existing equipment.

MAG's PM-10 efficient street sweeper program is being funded over the next 4 to 5 fiscal years, which may result in a greater number of street sweepers being purchased and placed in operation in a shorter time frame than could be expected using South Coast's natural attrition approach. While it is possible that some cities/towns in Maricopa may continue to contract out for street sweeping services where PM-10 efficient sweepers may not be used, most do not contract for street sweeping. Furthermore, due to the fact that public entities will be competing for PM-10 efficient street sweepers funded by CMAQ dollars with only a low cost share requirement, we believe that the already limited reliance on contracted out services in Maricopa County will be reduced as new PM-10 efficient equipment becomes available and that contractors will switch to PM-10 efficient equipment to meet new demand. In addition, MAG's program ensures that the cities/town/County develop plans for how the street sweepers will be used to maximize their emissions reduction potential. We, therefore, believe that overall the Maricopa program is equivalent to South Coast's Rule 1186.

e. Unpaved parking lots

This category includes emissions from re-entrained road dust from vehicle traffic on unpaved parking lots and windblown dust

entrained from the disturbed surface of unpaved parking lots.

There are two principal ways to control emissions from unpaved parking lots: prohibit unpaved parking lots or treat existing lots. MAG plan identified both: a prohibition on unpaved haul road and parking or staging areas and surface treatment to reduce dust from unpaved driveways and parking lots. MAG plan, Table 5-2. The MAG plan identified one potential MSM, South Coast's Rule 403 which controls fugitive dust from parking areas on construction sites. MSM Study, p. C-9 and 10. It did not identify any potential MSM for non-construction site unpaved parking lots. We believe this list is complete and propose to find that the MAG plan evaluates a comprehensive set of potential BACM and MSM for unpaved parking lots.

Most local jurisdictions in Maricopa County identified ordinances that require paving of new parking lots. In addition, MCESD Rule 310.01, section 303 requires owners/operators of an unpaved parking lot larger than 5,000 square feet to pave, apply dust suppressants, or apply gravel, according to the applicable rule's standards/test methods. Applicable standards include a 20 percent opacity standard, and an 8 percent silt content standard and/or a 0.33 oz/square foot silt loading standard. Section 303.2. MCESD Rule 310, section 302.1 applies the same stabilization requirements to parking lots on permitted facilities. Finally, many cities/towns have treated their own

parking lots or required treatment of private lots below MCESD's thresholds.

In determining whether the MAG plan provides for the implementation of BACM for unpaved parking lots, we are first specifically considering whether the plan provides for the implementation of RACM for these sources.²³ In our 1998 moderate area PM-10 FIP for the Phoenix area, we promulgated a RACM fugitive dust rule applicable to unpaved parking lots in the Phoenix PM-10 nonattainment area. 40 CFR 52.128(d)(3). This rule provides a starting point for determining whether the MAG plan's measures for unpaved parking lots meet RACM. It is not

²³ While a serious area PM-10 plan must provide for both the implementation of RACM (to the extent that it has not already satisfied the requirement in its moderate area plan) and BACM, in determining whether such a plan provides for BACM implementation, we do not normally conduct a separate evaluation to determine if the measures also meet the RACM requirements of the CAA as interpreted by EPA in its General Preamble. See 57 FR 13540. This is because in our serious area guidance (Addendum at 42010), we interpret the BACM requirement as generally subsuming the RACM requirement (i.e., if we determine that the measures are indeed the "best available," we have necessarily concluded that they are "reasonably available"). See Addendum at 42012-42014. Therefore, a separate analysis to determine if the measures also represent a RACM-level of control is not generally necessary. However, in this particular case, we have already established through our FIP rule what we consider to be a RACM-level of control for this source category. Thus our FIP rule provides us with a baseline against which we can review whether the MAG plan provides not only for RACM but also goes beyond that for BACM. We also intend to eventually withdraw the FIP rule in favor of local controls. In order to do this, we must determine under CAA section 110(l), that, among other things, withdrawing the FIP rule does not interfere with the RACM requirements in the CAA. An explicit determination now simplifies this future action.

necessary for them to be identical to the FIP rule in order to meet the CAA's RACM requirement, but only that they provide for the implementation of RACM. However, if the submitted measures for a particular source are identical to the FIP rule, we can determine without further analysis that the MAG plan has provided for RACM for that source.

MCESD requirements for unpaved parking lots found in Rule 310.01, section 303 are the same in terms of source coverage and applicable standards/test methods for unpaved parking lots as the FIP rule, with the only difference being that Rule 310.01 applies county-wide while the FIP rule applies strictly to sources located in the PM-10 nonattainment area (located in the eastern third of the County). Rule 310.01 requirements became effective when the rule was adopted on February 2000. In light of the fact that Rule 310.01 requirements are the same as the FIP rule requirements and MCESD has made enforceable commitments to improve compliance and enforcement of Rule 310.01, we propose that the MAG plan provides for the implementation of RACM. Given the additional city/town commitments in the MAG plan that collectively increase the stringency of control on unpaved parking lots, we propose that the MAG plan also provides for the implementation of BACM. Both Rule 310.01 and the city/town commitments were implemented prior to June 10, 2000, the BACM implementation deadline for the Phoenix area.

As the only potential MSM, the MAG plan identifies South Coast's Rule 403 which requires sources to apply dust suppressants to stabilize at least 80 percent of unstabilized surface area and to comply with a 0 percent opacity property line limit. The MAG plan deems the respective requirements roughly equivalent to Rule 310. MAG plan, p. 10-29. We believe that the addition of a silt loading/content standard for unpaved parking lots for sources covered under Rule 310 increases the rule's stringency such that it is at least equivalent to that of South Coast Rule 403. We, therefore, propose to find that the MAG plan correctly concludes that there are no MSM in other State plans or used in practice elsewhere that are applicable to the Phoenix area.

f. Disturbed vacant lands

This category includes windblown fugitive dust emissions from disturbed surfaces of vacant lands. On vacant land, fugitive dust emissions are caused by virtually any activity which disturbs an otherwise naturally stable parcel of land, including earth-moving activities, material dumping, weed abatement, and vehicle traffic. 63 FR 15919, 15937 (April 1, 1998).

The MAG plan includes three suggested measures for controlling fugitive dust from vacant disturbed lands. MAG plan, Table 5-2. The plan also identified controls on weed abatement

operations and off-road racing as potential MSM. MAG plan, Table 10-7. We believe this list is complete and propose to find that the MAG plan evaluates a comprehensive set of potential BACM and MSM for disturbed vacant lands.

Both MCESD rules 301 and 301.01 address vacant lots. Rule 310 requirements apply to vacant lots located at permitted facilities (including construction sites) and Rule 310.01 requirements apply to nonpermitted sources.²⁴ Rule 310 and Rule 310.01 requirements apply to both publicly and privately owned lots. Rule 310, section 302.3 and Rule 310.01, section 301 and 302.

In determining whether the MAG plan provides for the implementation of BACM for disturbed vacant land, we are also specifically considering whether the plan provides for the implementation of RACM for this source category. See Footnote 23. In our FIP, we promulgated a RACM fugitive dust rule applicable to disturbed vacant land in the Phoenix PM-10 nonattainment area. 40 CFR 52.128(d)(3). This rule provides a starting point for determining whether the MAG plan's measures for disturbed vacant lands meet the RACM requirement. It is not necessary for them to be identical to the FIP rule in order to meet the CAA's RACM requirement, but only that they provide for

²⁴ Permitted sources include any facility permitted by MCESD and are not limited solely to those facilities with earthmoving permits. Rule 310, section 102.

implementation of RACM. However, if the submitted measures for a particular source are identical to the FIP rule, we can determine without further analysis that the MAG plan has provided for RACM for that source.

Rule 310.01 requirements for vacant lots and open areas are virtually identical to the Phoenix FIP rule's requirements for these sources. Rule 310.01, however, is more broadly applicable. It covers vacant lots and open areas located anywhere in Maricopa County, in contrast to the Phoenix FIP rule, which only applies to lots in the Maricopa County portion of PM-10 nonattainment area. Rule 310.01, sections 301 and 302. Unlike the FIP rule, Rule 310.01 also applies to partially developed residential, industrial, institutional, governmental, or commercial lots in Maricopa County, and any tract of land in the Maricopa County portion of the nonattainment area adjoining agricultural property. Rule 310.01, section 211.

Rule 310 requirements for vacant lots and open areas on permitted sources are more stringent than those in Rule 310.01, in that Rule 310 requires stabilization of all inactive disturbed surface areas on permitted facilities, regardless of their size. Rule 310, section 302.3. Rule 310 also contains requirements for weed abatement that closely resemble the Phoenix FIP rule's weed abatement requirements, except that Rule 310's threshold for

coverage is lower.²⁵

Vacant lots and open areas subject to Rule 310 and Rule 310.01 are required to meet the same surface stabilization standards/test methods as required in the Phoenix FIP rule.

In addition to requirements in Rule 310 and Rule 310.01, the MAG plan contains commitments by several cities and towns to address vacant disturbed lots. For example, seven jurisdictions require or will require stabilization of disturbed vacant lots after 15 days of inactivity (as compared to Rule 310.01's 60-day compliance period); two (2) prohibit dumping of materials on vacant land; and two (2) will stabilize all city-owned vacant lots. See EPA TSD section "Implementation of BACM and Inclusion of MSM for Disturbed Vacant Land."

Because Rules 310 and 310.01 requirements are at least as stringent as the FIP rule requirements and MCESD has committed to improve compliance and enforcement of these rules (as discussed below), we propose that the MAG plan provides for the implementation of RACM on disturbed vacant land. Because these rules increase the number of lots subject to control which collectively increase the stringency of control on vacant

²⁵ Rule 310 requires any earthmoving operation that disturbs 0.1 acre or more to have a dust control plan, including weed abatement by disking or blading, whereas the Phoenix FIP rule weed abatement requirements only apply to disturbances equal to or greater than 0.5 acres. Rule 310, section 303 and 40 CFR 52.128(c)(3) and (d)(3)(i).

disturbed lands, we propose that the MAG plan also provides for the implementation of BACM. All measures for vacant disturbed lands were implemented prior to the June 10, 2000 BACM implementation deadline for the Phoenix area.

For its MSM analysis, the MAG plan identifies measures in Clark County (Las Vegas, Nevada) Rule 41 and South Coast Rule 403. See MSM Study, pp. C-11 and C-16,17. The plan concludes that neither measure is more stringent than the Maricopa measures because Rule 310 and 310.01 contain similar and equally or more stringent requirements. We agree that the MCESD's rules are equally or more stringent.

We, therefore, propose to find that the MAG plan correctly concluded that there are no MSM in other State plans or used in practice elsewhere that are applicable to the Phoenix area.

g. Unpaved roads

This category includes re-entrained dust from vehicle travel on unpaved roads. There are three classes of unpaved roads in the Maricopa nonattainment area: public roads, private roads that are publicly maintained (also referred to as minimally-maintained or courtesy grade), and private roads that are privately maintained.

The MAG plan includes three suggested measures for controlling fugitive dust from unpaved roads: Surface treatment to reduce dust from unpaved roads and alleys, traffic

reduction/speed control plans for unpaved roads; and prohibition of unpaved haul roads. MAG plan, Table 5-2. The MAG plan does not identify any other State's measures that are more stringent than the ones already in the plan. We believe this list is complete and propose to find that the MAG plan evaluates a comprehensive set of potential BACM and MSM for unpaved roads.

In determining whether the MAG plan provides for the implementation of BACM for unpaved roads, we are also considering whether the Plan provides for the implementation of RACM for these sources. See Footnote 23. In our FIP, we promulgated a RACM fugitive dust rule applicable to unpaved roads in the Phoenix PM-10 nonattainment area. 40 CFR 52.128(d)(3). This rule provides a starting point for determining whether the MAG plan's measures for unpaved roads meet the RACM requirement. It is not necessary for them to be identical to the FIP rule in order to meet the CAA's RACM requirement, but only that they provide for implementation of RACM. However, if the submitted measures for a particular source are identical to the FIP rule, we can determine without further analysis that the MAG plan has provided for RACM for that source.

As discussed below, we propose to find that the MAG plan provides for the implementation of RACM and BACM and the inclusion of MSM for unpaved roads.

Surface treatment to reduce dust from unpaved roads and alleys.

The principal control measure for public unpaved roads and alleys is Rule 310.01, section 304, which requires all publicly-owned unpaved roads and alleys with 250 vehicles per day (VPD) or more to be stabilized by June 10, 2000 and those with 150 vehicles per day or more to be stabilized by June 10, 2004.

Several cities have commitments that go beyond the requirements of Rule 310.01 for publicly-owned unpaved roads. For example, the City of Phoenix committed to--and accomplished before June 10, 2000--paving all 80 miles of its publicly-owned unpaved roads regardless of the level of vehicle travel. Phoenix Commitment, Measure 98-DC-7. Other cities, such as Tempe and Gilbert, have very few remaining miles of public unpaved roads/alleys. See Tempe Commitments, Measure 98-DC-7 and Gilbert Commitments, Measure 98-DC-7.

For private roads, Rule 310, section 308.6, requires that easements, rights-of-way, and access roads for utilities (electricity, natural gas, oil, water, and gas transmission) that receive 150 or more VPD must be paved, chemically stabilized, or graveled in compliance with the rule's standards.

Private unpaved roads are scattered throughout Maricopa County, within both County and city jurisdictions. A survey performed for us of unpaved roads in Maricopa County determined that the great majority of identified unpaved road mileage consists of privately-owned roads that receive minimal

maintenance by the Maricopa County Department of Transportation (MCDOT).²⁶

MAG and MCDOT have committed to pave County minimal maintenance roads within the nonattainment area that currently exceed 150 VDT and meet criteria to become public highways, using \$22 million in CMAQ and MCDOT funds. MAG Commitment; Maricopa County Commitment, 1999 Revised Measure 17. This program will pave an estimated 60 miles of unpaved roadways in fiscal years 2001-2003 which is approximately 20 percent of the privately-owned, publicly-maintained County-jurisdiction roads and account for 40 percent of all VMT on these roads. Maricopa County has also committed to continue to evaluate other roads for funding when traffic levels increase above 150 vehicle trips per day. Maricopa County Commitment, 1999 Revised Measure 17. We interpret this commitment to apply to any private roads within County jurisdiction, whether they currently receive minimal maintenance or not.

As the County evaluates roads for paving, it may make exceptions to its commitment to pave roads with vehicle trips that exceed 150 VDT. The County's evaluation process takes into account whether estimated costs of paving are excessive (greater

²⁶ Pacific Environmental Services, "Survey for Fugitive Dust Emission Sources", April 15, 1999.

than \$500,000 per mile).²⁷ When MCDOT identifies a road that meets these criteria (i.e. the road can be declared a public highway and costs are not excessive), it will recommend that the Board of Supervisors open and declare the road a public highway.²⁸

Because BACM implementation properly takes costs into account, we believe that MCDOT's criteria for selecting private

²⁷ A private road begins to bear other than local traffic through extensions of other nearby public roads or the construction of an indirect source that attracts external drivers using the road as a short cut. See Maricopa County Commitments, 1999 Revised Measure 17.

²⁸ Maricopa County provided an update to us of their efforts to identify and pave County minimal maintenance roads. Kelly McMullen, MCDOT, via email on May 4, 2001. The County identified approximately 68 miles of minimal maintenance roads (courtesy grading only) that potentially could have over 150 VPD traffic. Of those roads, the County was unable to gather traffic count information for approximately 3 miles due to repeated counter vandalism or theft. The County included remaining roads with traffic counts over 130 VPD (allowing for short term growth, seasonal variation, etc.) in its program to pave, totaling approximately 65 miles, consisting of approximately 186 segments. The first group of these roads was expected to have a bid awarded in June 2001 and be paved by Fall 2001. Design work for the second group was expected to begin in Summer 2001 and is expected to go to bid for construction within the next twelve months. Design work for the third group also expected to begin in Summer 2001 and is expected to be bid approximately 10-12 months following the second group. This third group reflects the most difficult engineering and environmental issues. Based on project engineer estimates at this time, the County believes that six segments totaling approximately 3.0 miles may exceed the reasonable cost threshold of \$500,000 per mile, or have issues with adjoining property owners that are not possible to resolve within the SIP time frames. The County will evaluate whether another method of dust suppression may be viable for those segments.

roads to pave are suitable in the context of a strategy to implement BACM and will result in control of the great majority of high traffic unpaved roads. Although available information on private roads in city jurisdictions is limited, our existing information suggests that a typical privately-owned unpaved road has little traffic on it.²⁹ As a result, we believe that the vast majority of private unpaved roads do not need to be controlled in order for us to determine that the MAG plan provides for the implementation of BACM for unpaved roads for the 24-hour standard.

Traffic reduction/speed control plans for unpaved roads. Some jurisdictions committed to evaluate this measure. Two jurisdictions committed to posting 15 mph speed limit signs on private and public unpaved roads and access ways; one jurisdiction has posted 15 mph speed limits in all alleys. See MAG plan, Table 10-9. Also, under Rule 310, owners/operators of

²⁹ Through MAG, we requested additional information on private unpaved roads from the cities of Chandler, Scottsdale, Gilbert, Glendale, Mesa, Phoenix, Tempe, Peoria, Avondale, Carefree, Cave Creek, El Mirage, Goodyear, and Surprise. Letter Colleen McKaughan, EPA, to Lindy Bauer, MAG, March 21, 2001. All but three cities responded to the survey. Five cities state that they currently have no private unpaved roads with greater than 150 VPD. Three cities indicate they do not believe there are private unpaved roads with greater than 150 VPD in their jurisdictions. The remaining cities either have a small number of private road miles identified with greater than 150 VPD or make no statement regarding the number of private road miles with greater than 150 VPD in their jurisdictions. Letter Lindy Bauer, MAG, to Colleen McKaughan, EPA, June 29, 2001.

unpaved haul roads and utility roads who comply with the rule by limiting vehicle trips to 20 per day, must also limit vehicle speeds to 15 mph. While speed limit controls are only being implemented to a limited extent, we believe the plan's measures to pave or otherwise stabilize unpaved roads in the Phoenix PM-10 nonattainment area establish the critical commitments for the implementation of RACM and BACM because road stabilization ensures emission reductions whereas speed limits may or may not be observed.

Prohibition of unpaved haul roads. Rule 310 requires that unpaved haul roads meet both a 20 percent opacity standard and a silt content or silt loading standard. Rule 310, section 302.2. We propose to find that this requirement is sufficient for the implementation of BACM for these roads. We believe requiring compliance with both of these standards ensures that these roads will be stabilized.

Evaluation of unpaved road measures in other areas found none that are more stringent than the measures for unpaved roads in the MAG plan. MAG plan, Table 10-7. We agree and propose to find that there are no other MSM for unpaved roads than are already included in the MAG plan.

Please see the TSD section "Implementation of BACM and Inclusion of MSM for Unpaved Roads" for a more detailed discussion of our proposed findings.

h. Construction sites and activities

Sources of fugitive dust emissions at construction sites include land clearing, earthmoving, excavating, construction, demolition, material handling, bulk material storage and/or transporting operations, material track out or spillage onto paved roads (which we have addressed in the paved road section), and vehicle use and movement on site (e.g., the operation of any equipment on unpaved surfaces, unpaved roads and unpaved parking areas). Windblown emissions from disturbed areas on construction sites are also a source of PM-10. Construction operations, which are mostly earthmoving, represent some 90 percent of the emissions in this source category.

The suggested measure in the MAG plan for controlling emissions from construction sites are actually various means of improving compliance with controls rather than new control requirements for construction sites. See MAG plan, Table 5-2. MCESD had already adopted controls for construction sites in its fugitive dust rule, Rule 310. The plan also identifies several potential MSM. See MAG plan, Table 10-7. We propose to find that the MAG plan evaluates a comprehensive set of potential controls for construction sites emissions including the potentially MSM from other states.

Rule 310's requirements, effective on February 16, 2000, apply to any source required to obtain a permit under Maricopa

County rules, which includes earthmoving operations of 0.10 acre or more³⁰ and sources subject to title V permits,³¹ non-title V permits, or general permits. In addition to rule requirements for fugitive dust sources located at any permitted source, Rule 310 requires that a Dust Control Plan (DCP) be submitted for any earthmoving operations of 0.10 acre or more, and that the DCP be approved prior to commencing any dust generating operation. The rule's definition of a dust generating operation includes any activity capable of generating fugitive dust including land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment or unpaved parking lots.

For other permitted sources, Rule 310 requires that a DCP be submitted and approved prior to commencing any routine dust generating activity, defined as any dust generating operation which occurs more than 4 times per year or lasts 30 cumulative

³⁰ Earthmoving operations include cutting and filling, grading, leveling, excavating, trenching, loading or unloading of bulk materials, demolishing, blasting, drilling, adding to or removing bulk materials from open storage piles, back filling, soil mulching, landfill operations, or weed abatement by discing or blading.

³¹ Title V permits are operating permits required by Title V of the Clean Air Act for major stationary sources and certain other stationary sources.

days or more per year.³²

Specific Rule 310 requirements include:

- a 20 percent opacity requirement for any dust generating operation
- wind event controls
- implementation of controls before, after and while conducting any dust generating operation, including weekends, after work hours and holidays
- required controls and standards for:
 - unpaved parking lots
 - unpaved haul/access roads
 - disturbed open areas and vacant lots
 - bulk material hauling
 - bulk material spillage, carry-out, erosion and track out
 - open storage piles
 - weed abatement by blading or discing
- a requirement in dust control plans for at least one primary and one contingency control for all fugitive dust sources; the contingency measure is to be immediately implemented if the primary control proves ineffective

³² This is in addition to the requirement to submit a DCP for any earthmoving operation that disturbs 0.10 acre or more even if the operation is subject to Title V or other permitting requirements.

In order to comply with the rule's 20 percent opacity standard and dust control plan requirements for implementing primary and/or contingency controls for earthmoving activities, sources need to apply one or more controls, which in most cases includes applying water or another dust suppressant before and during operations. Inactive disturbed surfaces must be stabilized to meet at least one of the rule's stabilization standards (e.g. visible crusting, 10 percent rock cover, etc.). Unpaved roads and unpaved parking lots must also be stabilized to meet both a 20 percent opacity standard and a silt content/loading standard.³³ Test methods associated with stabilization and opacity standards are contained in Appendix C, which was submitted with Rule 310.

The 1999 revisions to Rule 310 that have increased the rule's stringency include the addition of specific work practice standards, the addition of stabilization standards and test methods for unpaved surfaces, and modifications to the opacity test method (adding an alternative opacity test method for unpaved roads and unpaved parking lots and modifying the opacity test method for other sources). We believe that the new and/or revised standards/test methods provide for a greater degree of

³³ Unpaved roads must meet a 6 percent silt content standard or, alternatively, a 0.33 oz/ft² silt loading standard, while unpaved parking lots must meet an 8 percent silt content standard or, alternatively, a 0.33 oz/ft² silt loading standard.

control than under the previous SIP-approved version of Rule 310.

In addition to these Rule 310 revisions, MCESD made three enforceable commitments to further strengthen requirements for construction sites in 1999. See Maricopa County Commitments, Revised Measure 6. MCESD has recently revised these commitments and will take the revisions to the Maricopa County Board of Supervisors in December, 2001 for formal adoption as enforceable commitments. See Letter, Al Brown, MCESD to Jack Broadbent, EPA, September 13, 2001 (MCESD commitment letter). The commitments are to:

1. Research and develop a standard(s) and test method(s) for earth moving sources, designed to be enforceable and meet BACM requirements as to stringency and the number of sources that it applies to. Revise Rule 310 and/or Appendix C by no later than December 2002 to modify the existing opacity standard/test method or add an additional opacity standard(s)/test method(s), tailored to non-process fugitive dust sources that create intermittent plumes. This commitment will be met in its entirety only if the standard(s)/test method(s) is approved by EPA. The County is also proposing to support and coordinate with Clark County, Nevada in the ongoing research to develop fugitive dust test methods through the appropriation of \$25,000.

2. Part 1: Onsite Implementation of Dust Control Plan

Raise awareness of onsite project supervisors to acquire and

read approved site dust control plans thereby improving the implementation of the dust control plan at the construction site. This objective will be achieved through one-on-one contact at the time of inspection and through the development of a revised training curriculum and supporting materials for both a classroom setting and onsite aids for improved project management. Maricopa County inspectors will continue to go over dust control plans with construction site personnel during the initial site inspection and whenever issues arise during subsequent inspections. The training curriculum being developed by the Arizona Department of Transportation (ADOT) is scheduled for completion in winter of 2002 and implementation of the second level of dust control education will begin March--June 2003.

Part 2: Dust Control Plan Improvements

Research, develop and incorporate additional requirements for dust suppression practices/equipment into dust control plans and/or Rule 310 by March--December 2002. Based on the ADOT research, MCESD research or other alternative research, Maricopa County will develop a growing list of criteria for effective versus ineffective dust suppression practices that address various site circumstances.

3. Revise the sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of

dust control measures required by Rule 310 and the dust control plan. Distribute sample log sheets with issued permits and conduct outreach to sources by December 2001.

The first commitment addresses our concern that the existing opacity standard and test method for earthmoving operations may not always be sufficient to control construction site dust to BACM levels. MCESD has already revised the opacity test method to deal partially with this concern (see Rule 310, Appendix C), but we believe that additional standards/test methods are needed to fully assure that sources are effectively controlled.

Field research is needed to identify an appropriate standard(s) and test method(s) to meet this commitment. MCESD originally committed to complete this research and revise the opacity method by July 2001 but was unable to do so. It now intends to work with Clark County which has recently conducted research on test methods for earthmoving sources and is planning to conduct a second phase of research. MCESD will contribute funding to these efforts. MCESD has requested a one-year extension of the deadline in its original commitment in order to monitor, validate and verify the resulting test method(s) performance in Maricopa County.

The second commitment addresses our concern that DCPs lack specific criteria for dust suppressant application. For example, a source engaged in grading or cut-and-fill earthmoving for a

multi-acre project may choose to comply with Rule 310 by applying water. However, neither the rule nor DCPs establishes minimum criteria for the number of water trucks/water application systems and water truck capacity for any given size construction site or a ratio of earthmoving equipment to water trucks. Also, for effective dust control, certain soil types may require substantial pre-wetting, thorough mixing of water into the soil for uniform penetration, and/or dust surfactant or tackifier combined with water; neither Rule 310 nor DCPs currently require such measures for any sites.

Establishing criteria for dust control is complicated by variations in soils, meteorological conditions, equipment size/use, project phase, and level of activity. All these factors can impact the amount of water (or other controls) needed to control fugitive dust on a particular site on a particular day and has made it difficult to establish these criteria. Because of this difficulty MCESD has revised its original commitment to allow additional time to develop them.

MCESD has also expanded its original commitment to include a program to work with on-site supervisors to assure that they obtain and review the DCP for their sites. In implementing Rule 310 during the last year, it found that site supervisors do not have or do not know what is in their DCPs and thus may not be implementing appropriate dust control methods.

The third commitment addresses our concern that while Rule 310 currently contains an acceptable recordkeeping requirement, a more specific recordkeeping requirement would help improve compliance. Currently neither the rule nor DCPs specify what information should be included in a daily log. MCESD has revised its original commitment to allow additional time to work with its stakeholders to develop daily recordkeeping log sheets to provide sufficient detail documenting the implementation of dust controls.

We propose to find that Rule 310 as adopted on February 16, 2000 and combined with the commitments by MCESD to make certain additional changes to the Rule, provide for the implementation of RACM and BACM on construction sites for the 24-hour PM-10 standards.³⁴ We have also determined that the revised commitments do not affect our previous proposed finding that Rule

³⁴ These revised commitments are currently unenforceable because they have not been adopted by Maricopa County's Board of Supervisors. We are, however, proposing to approve these commitments under CAA section 110(k)(3) as an enforceable element of the Arizona SIP because we fully expect that the Board will adopt these commitments as enforceable SIP commitments and the State will submit them as a complete SIP revision prior to our final action. However, if we do not receive the adopted commitments by the time we must take final action, we propose to conditionally approve them under CAA section 110(k)(4). If we take final action to conditionally approve these commitments, MCESD will have one year to fulfill the commitment or the approval will turn into a disapproval and we would no longer be able to find that the MAG plan provides for the implementation of BACM and the inclusion of MSM on construction sites for either the annual or 24-hour standards.

310 combined with the commitments provide for the implementation of RACM and BACM on construction sites for the annual standard. 65 FR 19964, 19980. The rule is comprehensive in scope in that each dust source is subject to a set of requirements under Rule 310 (e.g. storage piles, dirt trackout, haul truck loads, disturbed areas, earthmoving operations).

The MAG plan identifies several potential most stringent construction site fugitive dust measures either in or under consideration for inclusion in others SIPs. See MSM Study, Table 1-2 and Table 3-1.

Most of the potential MSMs are provisions in South Coast fugitive dust rule, Rule 403. The MAG plan indicates that each of the South Coast and MCESD's rules are more stringent than the other in certain respects. MAG plan, p. 10-35. The MAG plan acknowledges that Rule 403 contains more stringent control measure requirements than those imposed by Rule 310. For example, Rule 403 requires that water be applied to soil not more than 15 minutes prior to moving the soil and requires open storage piles to be watered twice per hour or covered. However, the MAG plan indicates that Rule 310's 20 percent opacity limit is generally more restrictive than Rule 403's property line standard because a 20 percent opacity fugitive dust plume typically disperses to zero visibility within 50 feet downwind of a source. MSM Study, p. C-12. The MAG plan concludes that, on

balance, Rule 310 is equally stringent compared to Rule 403's construction site requirements. We agree with this conclusion with the caveat that we believe Rule 310 and/or dust control plans require additional controls for dust suppression. This caveat is addressed in the MAG plan's commitment to research, develop and incorporate additional requirements for dust suppression practices/ equipment for construction activities into dust control plans and/or Rule 310.

The MAG plan does not discuss any construction site measures from other areas as potential most stringent measures. Based on our work with the Las Vegas area, we have identified requirements in Clark County Health District permits that are potentially more stringent than Maricopa County's measures.³⁵ These requirements include stand tanks on projects that are 10 acres or more in size, an additional, separate water truck when using a trencher or when screening, a separate water truck or pull during landscaping, maintaining all stockpiles in a moist condition, etc.

We propose to find that Rule 310's existing provisions and Maricopa County's second commitment to research, develop and incorporate additional requirements for dust suppression practices/equipment into Rule 310 and/or DCPs are consistent with

³⁵ These requirements are not in Clark County's fugitive dust rule but rather are required practices in dust control permits.

Clark County's requirements.

We have also identified a requirement in Imperial County Regulation VIII that is potentially more stringent than Maricopa County's measures. Imperial County Regulation VIII requires that water be applied 15 minutes prior to handling or transferring bulk material, chemical/physical stabilization, or sheltering/enclosure of the operation and transfer line. While Maricopa County Rule 310 requires owners/operators to comply with a 20 percent opacity standard for any dust generating operation and DCP must include a control measure for every fugitive dust source (including bulk material handling/transfer), it does not contain specific requirements as Imperial County does for this activity. However, watering 15 minutes prior to handling may be overly prescriptive and not necessary in all cases to meet the rule's performance standards. We propose to find that Maricopa County's second commitment to research, develop and incorporate additional requirements for dust suppression practices/equipment into Rule 310 and/or DCPs is consistent with Imperial County's requirements.

For these reasons, we propose to find that the MAG plan provides for the inclusion of the MSM applicable to the Phoenix area for construction sites and activities. See Footnote 34.

i. Agricultural sources

The agriculture source category covers all dust generating

activities and sources on farms and ranches. These activities and sources include land planning, tilling, harvesting, fallow fields, prepared fields, field aprons, and unpaved roads. This source category is a very significant contributor to 24-hour PM-10 standard exceedances in the Phoenix area. At the West Chandler site, 55 percent of the modeled exceedance was due to agricultural sources (a cotton field and its apron). At the Gilbert site, 26 percent of the modeled exceedance was due to an agricultural source (a field apron). See Microscale plan, pp. 18-19.

In order to develop adequate controls for this source category, Arizona passed legislation in 1997 establishing an Agricultural Best Management Practices (BMP) Committee and directing the Committee to adopt by rule by June 10, 2000, an agricultural general permit specifying best management practices for reducing PM-10 from agricultural activities. The legislation also required that the implementation of agricultural controls begin with an education program starting by June 10, 2000 with full implementation by December 31, 2001. See Arizona Revised Statutes (A.R.S.) 49-457.

After a series of meetings during 1999 and 2000, the Agricultural BMP Committee adopted the agricultural general permit and associated definitions, effective May 12, 2000, at Arizona Administrative Code (AAC) R18-2-610, "Definitions for

R18-2-611," and 611, "Agricultural PM-10 General Permit; Maricopa PM10 Nonattainment Area" (collectively, general permit rule).

The State submitted the general permit rule in July 2000 and its analysis quantifying the emission reductions expected from the rule and the demonstration that the rule meets the CAA's RACM, BACM and MSM requirements in June 2001. We proposed to approve it as meeting the CAA requirement for RACM on June 29, 2001 and signed the approval on September 10, 2001. See 66 FR 34598.

The general permit rule requires a commercial farmer to implement by December 31, 2001 at least one BMP for three categories of emission sources on a farm: tillage and harvest, non-cropland, and cropland. R18-2-610 defines commercial farmer as "an individual, entity, or joint operation in general control of 10 or more continuous acres of land used for agricultural purposes within the boundary of the Maricopa County PM10 nonattainment area." R18-2-610 defines tillage and harvest as "any mechanical practice that physically disturbs cropland or crops on a commercial farm." R18-2-610 defines non-cropland as "any commercial farm land that: is no longer used for agricultural production; is no longer suitable for production of crops; is subject to a restrictive easement or contract that prohibits use for the production of crops; or includes a private farm road, ditch, ditch bank, equipment yard, storage yard, or well head." R18-2-610 defines cropland as "land on a commercial

farm that: is within the time frame of final harvest to plant emergence; has been tilled in a prior year and is suitable for crop production, but is currently fallow; is a turn-row." R18-2-610 defines a BMP as "a technique verified by scientific research, that on a case-by-case basis is practical, economically feasible and effective in reducing PM-10 particulate emissions from a regulated agricultural activity."

For enforcement purposes, a commercial farmer is required to maintain a record demonstrating compliance with the general permit. A commercial farmer not in compliance with the general permit is subject to a series of compliance actions described in A.R.S. 49-457.I-K.

The BMP Committee began implementing the general permit rule in June 2000 by means of an extensive educational outreach program informing growers about the BMPs. In addition, the BMP Committee developed a Guide to Agricultural PM-10 Best Management Practices to provide information and guidance on how to effectively implement BMPs.³⁶ Farmers must be in compliance with the general permit rule by December 31, 2001.

For the reasons discussed below and more extensively in the section "Implementation of BACM and Inclusion of MSM for Agricultural Sources" in the EPA TSD, we propose to find that the

³⁶ "Guide to Agricultural PM-10 Best Management Practices, Maricopa County, Arizona PM-10 Nonattainment Area," Governor's Agricultural BMP Committee, First edition, February, 2001.

State's general permit rule meets the CAA's requirements to provide for the implementation of BACM by June 10, 2000 in CAA section 189(b)(1)(B) and to include MSM in section 188(e). Our proposed finding is applicable to both the annual and 24-hr standards. It revises our previously proposed finding in the annual standard proposal that the State's commitment in the MAG plan to adopt and implement agricultural best management practices meets the CAA's requirements for BACM and MSM by substituting the BMP general permit rule. 65 FR 19964, 19981.

In September 1998, the Agricultural BMP Committee appointed an Ad-hoc Technical Group to develop a comprehensive list of potential BMPs for regulated sources in the Maricopa County nonattainment area. Participants on the Ad-hoc Group included the USDA NRCS, USDA Agricultural Research Service, University of Arizona College of Agriculture, ADEQ, University of Arizona College of Agriculture and Cooperative Extension, Western Growers Association, Arizona Cotton Growers Association, Arizona Farm Bureau Federation, and EPA. BMP TSD, p. 15.

The Ad-hoc Technical Group reviewed available dust control regulations, literature, and technical documents, and developed a list of 65 conservation practices potentially suitable to agricultural sources in the Maricopa County nonattainment area for further consideration. BMP TSD, p. 16. These 65 measures represented a broad spectrum of potential BMPs, many of which

related to conservation practices used in the western United States that had never been evaluated in the context of reducing PM-10.

The Agricultural BMP Committee thoroughly reviewed the potential practices presented by the Ad-hoc Technical Group and evaluated the potential BMPs using available information on technological feasibility, costs, and energy and environmental impacts. After an analysis of the limited information available and numerous public discussions, the Committee decided to include 34 of the 65 BMPs in the general permit rule and divided these 34 BMPs into the three categories of farm activities specified in A.R.S. 49-457.N.: 10 BMPs applicable to the tillage and harvest category; 10 BMPs applicable to the non-cropland category; and 14 BMPs applicable to the cropland category. See BMP TSD, 17. In selecting these BMPs, the Committee deemed them to be feasible, effective and common sense practices for the Phoenix area which minimized potential negative impacts on local agriculture.

Of the 31 potential BMPs eliminated, the majority were dropped because they either duplicated another BMP or did not reduce PM-10. Other reasons for elimination included the impracticability of a BMP for the Maricopa County Area, lack of cost effectiveness, or infeasibility of implementation. See June 13, 2001 BMP submittal, Enclosure 3, Attachment 8.

At the time the BMP Committee was developing the general

permit rule, there was very limited available information concerning the technological feasibility, costs, and energy and environmental impacts of these BMPs. Although the Committee determined that all the selected BMPs were technologically feasible control requirements, it found that calculating the other impacts on a commercial farmer was difficult. Because of the variety, complexity, and uniqueness of farming operations in Maricopa County, the Committee concluded that farmers need a variety of BMPs in each of the three categories of agricultural activities to choose from in order to tailor PM-10 controls to their individual circumstances. Further, the BMP Committee acknowledged that there is a limited amount of scientific information available concerning the emission reduction and cost effectiveness of some BMPs, especially in relation to Maricopa County. The BMP Committee balanced the limited scientific cost effectiveness information with the common sense recognition that the BMPs would reduce wind erosion and the entrainment of agricultural soils, thereby reducing PM-10. As a result, and given the myriad factors that affect farming operations, the BMP Committee concluded that requiring more than one BMP for each of the three agricultural categories could not be considered technically justified and could cause an unnecessary economic burden to farmers. Instead, the BMP Committee and ADEQ agreed to monitor the effectiveness of the BMPs and adjust the program, if

needed, in the future. BMP TSD, p. 18.

The general permit rule, as finally adopted by the BMP Committee in May 2000 as BACM and MSM, requires that commercial farmers implement at least one BMP for the tillage and harvest, cropland, and non-cropland categories by December 31, 2001.

We define a BACM-level of control to be, among other things, the maximum degree of emission reduction achievable from a source or source category which is determined on a case-by-case basis, considering energy, economic and environmental impacts. Addendum at 42010. Based on the BMP committee's findings regarding technological feasibility and economic effects of requiring more than one BMP per category, we believe that the BMP rule provides the maximum degree of emission reductions achievable from the agriculture source category in the Phoenix area and, therefore, meets the BACM requirement in section 189(b)(1)(B).³⁷

A requirement that an individual source select one control

³⁷ We also considered a BACM-level control as going beyond existing RACM-level controls, such as expanding use of RACM (e.g, paving more miles of unpaved roads). Addendum at 42013. As noted previously, we have proposed to approve the general permit rule as meeting the RACM requirement in CAA section 189(a)(1)(C). 66 FR 34598. In that proposal, we stated our belief "that the general permit rule represents a comprehensive, sensible approach that meets, and in fact far exceeds, the RACM requirements of CAA section 189(a)(1)(C) and EPA guidance interpreting those requirements." 66 FR 34598, 34602. Moreover, we explained that the State also intended the general permit rule and its enabling legislation to meet the CAA's serious area requirements. 66 FR 34598, 34599. Thus today's proposal that the general permit rule meets the BACM and MSM requirements of the Act is consistent with our prior action.

method from a list, but allowing the source to select which is most appropriate for its situation, is a common and accepted practice for the control of dust. For example, in its PM-10 FIP for Phoenix, we promulgated a RACM rule applicable to, among other things, unpaved parking lots, unpaved roads and vacant lots. The rule allows owners and operators to choose one of several listed control methods (pave, apply chemical stabilizers or apply gravel). 40 CFR 52.128(d). In the case of the FIP, those subject to the fugitive dust rule were given a choice of control methods in order to accommodate their financial circumstances.³⁸

Allowing sources the discretion to choose from a range of specified options is particularly important for the agricultural sector because of the variable nature of farming. As a technical matter, neither we nor the State is in a position to dictate what precise control method is appropriate for a given farm activity

³⁸ See, as examples, SCAQMD Rule 403 (providing for alternative compliance mechanisms for the control of fugitive dust from earthmoving, disturbed surface areas, unpaved roads etc.); and SCAQMD Rule 1186 (requiring owners/operators of certain unpaved roads the option to pave, chemically stabilize, or install signage, speed bumps or maintain roadways to inhibit speeds greater than 15 mph). We proposed to approve these SCAQMD rules as meeting the RACM and/or BACM requirements of the CAA on August 11, 1998 (63 FR 42786) and took final action approving them on December 9, 1998 (63 FR 67784). See also the approval of Maricopa County Environmental Services Department (MCESD) Rule 310 as meeting the RACM/BACM requirements (62 FR 41856, August 4, 1997) and the proposal to approve updated Rule 310 and MCESD Rule 310.01 as meeting the same requirements (65 FR 19964, April 13, 2000).

at a given time in a given locale. The decision as to which control method from an array of methods is appropriate is best left to the individual farmer. Moreover, the economic circumstances of farmers vary considerably. As a result, it is imperative that flexibility be built into any PM-10 control measure for the agricultural source category whether that measure is required to meet the RACM or BACM requirements of the Act.

We believe that the work of the BMP Committee resulted in the timely adoption of the general permit and educational programs that requires BACM implementation on a schedule that will allow time for the agricultural community to understand and select appropriate BMPs and to transition to new practices, some of which may involve the purchase of new equipment. Based on these factors, we believe that the BMP implementation schedule is as expeditious as practicable and meets the BACM implementation deadline for the Phoenix area of June 10, 2000.

The MAG plan identified two potentials MSM for agricultural sources 1) cessation of tilling on high winds days in South Coast's Rule 403.1 and 2) soil erosion plans in South Coast's Rule 403. MAG plan, Table 10-8. The plan concluded that neither is, by itself, MSM for the Phoenix area.

South Coast's 403.1, "Wind Entrainment of Fugitive Dust," applies only in the Coachella Valley (Palm Springs) portion of the South Coast Air Basin and requires that, when wind speeds

exceed 25 miles per hour (mph), agricultural tilling and soil mulching activities should cease. While the measure applies throughout the year, the high wind days tend to occur during a high-wind season that extends between April and June. The Coachella Valley typically experiences high winds on 47 days of the year. MAG estimated that there were a total of 37 hours, representing 11 days, with wind speeds greater than 15 mph in 1995 in Maricopa County.

The BMP general permit rule includes "limited activity during high wind event" as one of ten BMPs that a grower can choose for the Tillage and Harvest category. According to an analysis in the MAG plan, postponing tilling on high wind days would reduce emissions by 72 percent on high-wind days. MSM study, p. 4-23. However, because only 15 percent of the Maricopa County PM-10 nonattainment area tilling occurs during the high wind season (March through September) and because less than 4 percent of the days during this period experience winds greater than 15 mph, the air quality benefits of the measure would be small (i.e., 0.08 metric tons per average annual day in 1995) for the annual standard. MSM study, p. 4-23. Emissions from tilling are a very small contributor to total agricultural emissions on the 1995 design day (which was a high-wind day), representing just 1.6 percent of all agricultural emissions and are not implicated in 24-hour exceedances. URS, Technical Support

Document for Quantification of Agricultural Best Management Practices, June 8, 2001 (Ag Quantification TSD), p. 3-11 and Microscale plan, pp. 18-19. Moreover, based on the limited amount of information available regarding the control efficiencies for the ten BMPs in the Tillage and Harvest category, the control efficiency for "limited activity during high-wind event" is on average as effective or less effective than the other BMPs in this category. Ag Quantification TSD, pp. 2-8 to 2-10.

South Coast's Rule 403, "Fugitive Dust," requires the implementation of conservation practices to reduce PM-10 from agricultural sources in the South Coast PM-10 nonattainment area. Under Rule 403(h), agricultural operations exceeding 10 acres within the South Coast Air Basin are exempt from the rule's requirements for fugitive dust if the farmer implements the conservation practices in the most recent Rule 403 Agricultural Handbook. See "Rule 403 Agricultural Handbook: Measures to Reduce Dust from Agricultural Operations in the South Coast Air Basin," South Coast AQMD, December 1998 (the Handbook). Because the requirements of Rule 403 are more stringent than the requirements for conservation practices in the Handbook, it is assumed that farmers will always choose to comply with the latter's provisions. Thus the Handbook, rather than Rule 403 itself, is effectively the potential MSM.

For a variety of reasons, it is difficult to directly compare the requirements in the general permit with the requirements in the Handbook. First, the South Coast did not attempt to estimate the reductions and cost from each conservation practice. Second, the types of crops grown in Maricopa County and the South Coast area differ significantly. For example, cotton is a dominant crop in Maricopa County but is not grown in the South Coast Air Basin. Third, the Handbook allows a grower to substitute a local ordinance for the three conservation practices required for "inactive" agricultural land; however, the minimum requirements for the local ordinance are not specified. Handbook, section II, p.4. Fourth, the general permit rule and the Handbook also differ in terms of exemption and waivers. The general permit rule does not exempt any crop types or provide a waiver option, but the Handbook exempts orchards, vine crops, nurseries, range land, and irrigated pastures from requiring a practice for the active and inactive categories. Finally, the Handbook also allows farmers to request a waiver if the farmer cannot apply the required practices or a verifiable alternative.

While the general permit rule divides agricultural activities into three categories and the Handbook divides them into six, and the terminology used is different, the categories of activities covered are essentially coterminous. Cf. Handbook,

section I and ACC R18-2-610.7, .12, .22, .33. However, depending on the type of farming operation, the general permit rule would require implementation of at least one BMP for each of the Tillage and Harvest, Cropland, and Non-Cropland categories and the Handbook requires from one to three practices for its six agricultural categories.

As discussed above, in the BACM section of this TSD, the BMP Committee concluded that, because of the variety, complexity, and uniqueness of farming operations and because agricultural sources vary by factors such as regional climate, soil type, growing season, crop type, water availability, and relation to urban centers, agricultural PM-10 strategies must be based on local factors. Therefore, the general permit rule, as finally adopted by the BMP Committee in May 2000, reflects the conclusion of the BMP Committee that farmers need a variety of BMPs to choose from in order to tailor PM-10 controls to their individual circumstances. Further, the BMP Committee acknowledged that there is a limited amount of scientific information available concerning the emission reduction and cost effectiveness of some BMPs, especially in relation to Maricopa County. The BMP Committee balanced these limitations with the common sense recognition that the BMPs would reduce wind erosion and the entrainment of agricultural soils, thereby reducing PM-10.

While the Committee surveyed measures adopted in other

geographic areas, these measures were of limited utility in determining what measures are available for the Maricopa County area. Given the limited scientific information available and the myriad factors that affect farming operations, the BMP Committee concluded that requiring more than one BMP could not be considered technically justified and could cause an unnecessary economic burden to farmers.

Adding to concerns about the economic feasibility of requiring more BMPs per farming activity is the general uncertainty regarding the cost of the BMPs and continued viability of agriculture in Maricopa County. Between 1987 and 1997, the number of farms operating in Maricopa County declined by approximately 30 percent and the amount of land farmed declined by approximately 50 percent. This trend is expected to continue. Finally, in order to justify additional requirements for farming operations in the area beyond those in the general permit rule, the BMP Committee determined that a significant influx of money and additional research would be needed. BMP TSD, p. 18.

Based on all of these factors, the BMP Committee concluded that the Handbook's practices were neither technologically nor economically feasible for agricultural sources in Maricopa County. BMP TSD, p. 18.

We agree with the analysis of the BMP Committee. As noted

previously, the development of the general permit rule was a multi-year endeavor involving an array of agricultural experts familiar with Maricopa County agriculture. Maricopa County is only the second area in the country where formal regulation of PM-10 emissions from the agricultural sector has ever been attempted. For the reasons discussed above, we propose to conclude that the BMP general permit rule meets or exceeds the stringency of South Coast Rule 403.1's requirement for cessation of tilling during high winds. Based on the forgoing analysis of the Handbook, we also propose to conclude that the Handbook's requirements are neither technologically nor economically feasible for Maricopa County. Because all the identified potential MSM have either not been demonstrated to be more stringent than existing Maricopa County controls or found to be infeasible for the area, we propose to find that the MAG plan provides for the inclusion of MSM as required by CAA section 188(e) to our satisfaction.

j. Residential wood combustion

The residential wood combustion (RWC) category includes emissions from the burning of solid fuel in residential fireplaces and woodstoves as well as barbecues and firepits.

Measures to control PM-10 from residential woodburning include a public education program, woodburning curtailment programs, retrofit requirements and restrictions or bans on the

installation of woodburning stoves and/or fireplace. In total the MAG plan lists 11 potential BACM and 10 potential MSM. MAG plan Tables 5-2 and 1-7. We believe these list are complete and propose to find that the MAG plan evaluates a comprehensive set of residential woodburning measures.

MCESD Rule 318, Approval of Residential Woodburning Devices, establishes standards for the approval of residential woodburning devices that can be used during restricted-burn periods. Maricopa County's Residential Woodburning Restriction Ordinance provides that restricted-burn periods are declared by the Control Officer when the Control Officer determines that air pollution levels could exceed the CO standard and/or the PM standard ($150 \mu\text{g}/\text{m}^3$). We approved Rule 318 and an earlier version of the ordinance (revised April 21, 1999) as providing for the implementation of RACM. See 64 FR 60678 (November 8, 1999).

MCESD revised the ordinance on November 17, 1999 to allow the Control Officer to declare restricted-burn periods when the particulate matter pollution levels could exceed the "particulate matter no-burn standard" of $120 \mu\text{g}/\text{m}^3$. We proposed to approve the revised ordinance as part of the annual standard proposal. 65 FR 19964, 19990. In addition, A.R.S. §9-500.16 and A.R.S. §11-875 (1998) required cities and the County to adopt by December 31, 1998, an ordinance that prohibits the installation or construction of a fireplace or wood stove unless it is a

fireplace with a permanently installed gas or electric log insert, a fireplace or wood stove that meets EPA's Phase II wood stove requirements, or a fireplace with a wood stove insert that meets EPA's Phase II stove requirements. Most jurisdictions have adopted or have committed to or indicated that State law requires them to adopt the required ordinance. See MAG Plan, pp, 7-55 to 7-64.

With these additional controls, the overall residential woodburning restriction program is strengthened and goes beyond the existing RACM-level program. Both strengthening and expanding existing programs are key criteria for demonstrating the implementation of BACM. See Addendum at 42013. Where the MAG plan has rejected potential BACM, it provides a reasoned justification for the rejection. All measures were implemented by June 10, 2000, the BACM implementation deadline for the Phoenix area. We, therefore, propose to find that the MAG plan provides for the implementation BACM for residential wood combustion.

The MAG plan identified a number of potential MSM for residential wood combustion. Except for the adoption of a lower threshold for calling no burn episodes, the plan does not provide for the adoption of any of these measures but provides reasoned and acceptable justifications for their rejection. Therefore, we propose to find that the MAG plan provides for the inclusion of

MSM.

k. Secondary ammonium nitrate

Secondary ammonium nitrate is formed by a chemical reaction in the atmosphere between oxides of nitrogen (NO_x) and ammonia (NH₃). Ninety percent of NO_x comes from motor vehicle exhaust (both on and off road) and 99.9 percent of NH₃ comes from animal wastes. See MAG plan, Table 3-1.

Two potential BACM were identified for ammonia nitrate control: reduce emissions of ammonia and nitrates from agricultural operations and require animal waste management plans for farms/ranches with more than 50 animals. The first measure involves tilling in of manure used as fertilizer within 48 hours of application. MAG plan, Table 6-1, measure 97-AG-3. The second measure would focus on reducing ammonia emissions from livestock waste during the winter months when conditions are most conducive to ammonium nitrate formation. MAG plan, Appendix B, Exhibit 5, p. 5-70. For MSM, no measures were found that required animal waste management plans for farms or ranches and no other measures were identified. See MAG plan, Table 10-7. A large number of measures that could reduce NO_x emissions were identified and have been evaluated for on-road motor vehicles and nonroad engines. We believe this list of measures is complete and propose to find that the MAG plan evaluates a comprehensive set of potential controls for ammonium nitrate.

Data from earlier studies indicate that ammonia emissions would need to be reduced by 80 percent to have an appreciable impact on ambient concentrations of ammonium nitrate. MAG plan, Appendix B, Exhibit 5, p. C-1. Essentially all ammonia emissions in the inventory are from livestock and not from the application of manure to agricultural fields. As result, controls on the application of manure are very unlikely to have any impact on PM-10 levels in the Phoenix area and therefore are not technologically feasible.³⁹ The estimated reduction in ammonia from implementing waste management plans is 30 percent, far short of the 80 percent needed to show impact on PM-10 levels (MAG plan, Appendix B, Exhibit 5, p. 5-72), so we also believe that this measure is currently not technologically feasible.

Other than the on-road vehicle and nonroad engine categories, we do not believe that there are any other sources of NOx that should be called significant in terms of contributing to ammonium nitrate levels. See MAG plan, Table 3-1.

Arizona has adopted a number of measures for controlling NOx emissions from motor vehicles and nationally, we have established emission standards for control of NOx from both on- and nonroad engines. The MAG plan does not identify any technologically feasible measures for the control of ammonia. For these reasons,

³⁹ We consider a measure technologically feasible for an area only if it has the potential to reduce emissions in a manner that reduces ambient concentrations in the area.

we propose to find that the MAG plan provides for the implementation of RACM and BACM and for the inclusion of MSM for secondary ammonium nitrates.

1. MCESD's commitments to improve compliance and enforcement of its fugitive dust rules

MCESD has committed to expanding and improving the compliance and enforcement program for its fugitive dust rules. These enforceable commitments are found in Maricopa County, 1999 Revised Measure 6, adopted December 15, 1999. A narrative description of them and other program changes are found in Appendix IV, Exhibit 3 to the MAG plan's modeling TSD. MCESD has also committed to continuing to improve Rule 310 and Rule 310.01. These commitments are described in Section E.3.h. "Construction Sites and Activities."

These improvements to the compliance and enforcement programs include increased public outreach and education, increased funding and staffing, increased inspection frequency, revised enforcement policies, and commitments to program evaluations and improvements. They address many of the program areas that are key to improving compliance and we believe form a solid program for increasing the effectiveness of the County's fugitive dust program.

We review these enforceable commitments and their current status below:

Staffing

Maricopa County committed to increasing its inspection staff to 8 inspectors, 1 supervisor, 1 aide and 2 enforcement officers by the end of January 2000 and to add a coordinator to the Small Business Environmental Assistance Program to assist smaller builders and construction companies and to help develop and implement education programs. It also committed to hire an attorney in the County Attorney's office to expedite civil litigation and to assist with prosecuting Class One Misdemeanor cases by April 2000. Total resources devoted to the fugitive dust program were to be increased to 15 positions, a 25 percent increase over previous levels. After reaching the committed staffing level, MCESD was to review the program in March 2000 to evaluate its effectiveness and the potential need to add more staff.

By the end of January 2000, inspection unit staffing increased to 8 inspectors, 1 supervisor, 1 coordinator (to oversee permit issuance and track notices of violations), 2 aides and 2 enforcement officer. By May 2000, the County Attorney's office hired an attorney, paralegal, and support staff. In 2000, the Department found that the existing staff in the Small Business Environmental Assistance Program was able to handle the workload for assisting smaller builders and construction companies and for helping to develop and implement education

programs. MCESD will re-evaluated the need for an additional coordinator in the small business assistance program when the second generation outreach and education materials are completed. In total, resources devoted to the fugitive dust program during the past year were 17 positions, a 42 percent increase over previous levels.

Organization

MCESD created a new enforcement section under the direct supervision of the MCESD Director/Air Pollution Control Officer (APCO). This position streamlines enforcement by reducing senior management review and approval of enforcement actions and allows enforcement officers to submit directly to the APCO's desk all enforcement actions requiring APCO approval.

In addition, MCESD committed to locate inspectors in two new regional offices to provide quicker response times to dust-related complaints and allow more time in the field. It has in fact located inspectors in four regional offices.

Funding

For FY 1999-2000, revenue for fugitive dust program was projected to be \$1.12 million from annual earth moving permit fees, a \$772,000 increase over the previous level. The increase was due to the 1998 fee increase for earth moving permits.

For FY 2000-2001, anticipated revenue for the fugitive dust program is approximately \$1.7 million, generated from annual

earth moving permit fees. This is a \$1.35 million increase over the previous level.

Inspection program

MCESD committed to develop by April, 2000 inspection priorities for vacant lots and unpaved parking lots that consider lot size and number of sources, with larger lots being inspected first and smaller lots in succeeding years. A number of cities have municipal programs to address these sources; therefore, the Department committed to initially direct its inspections to cities lacking such programs and to track the city plans that are required by State statute to stabilize target unpaved roads, alleys and unpaved shoulders.

Prior to its adopting additional commitments in December 1999, MCESD had already increased inspection rates and improved procedures for permitted sources such as construction sites including:

- Proactively inspecting sites larger than 10 acres, 3 to 6 times per year and inspect smaller sites once within 30 days of project start date.
- Scheduling weekend inspections randomly once per month.
- Providing a shortened complaint response time with a goal of 8 hours for high priority complaints and maintaining the current goal of 24 hours for others
- Revising standard operating procedures and checklists for

fugitive dust inspections to be consistent with the revised rules.

- Revising inspection standard operating procedures to have inspectors check for records and inspect fugitive dust sources at permitted stationary sources.

MCESD did develop by April, 2000 inspection priorities for vacant lots and unpaved parking lots considering lot size and number of sources with larger lots being inspected first and smaller lots in succeeding years. EPA and MCESD initially attempted, but were unsuccessful, to convert an Assessor's Office database of vacant lots into a user-friendly format for identifying priority lots. Now, MCESD inspectors are assigned geographical districts and are compiling notes on the vacant lots and unpaved parking lots in each district during their routine surveillance activities. Under current MCESD policy, the inspectors are first directed to handle all complaints and then to begin to address the larger sites on the individual district lists. In 2000, the inspectors made 499 inspections on vacant lots, unpaved parking lots, and unpaved roads.

Enforcement program

To meet its commitment to revise its enforcement program, MCESD issued a revised air quality enforcement policy on April 28, 2000. See Air Quality Violation Reporting and Enforcement Policy and Procedure, MCESD, April 28, 2000. This policy:

- includes guidelines for initiating various enforcement actions
- includes guidelines for reinspecting
- defines timely and appropriate action by laying out guidelines for which type of violation is appropriate for specific enforcement actions and for the time frames for escalating enforcement actions when appropriate
- identifies priority violations
- includes guidelines for when to seek penalties reflecting the economic benefit of noncompliance, if feasible
- includes guidelines for seeking and determining higher penalties for repeat violators
- includes guidelines for inspectors to handle predetermined citation categories from observation to justice court

Enforcement action options include issuing an Order of Abatement, filing a Misdemeanor Complaint in Justice court, or asking the County Attorney to seek a civil penalty in Superior Court.

Inspectors handle certain predetermined citation category violations and will be responsible for case development from observance of a violation to filing of the actual citation in the justice court. Having the inspectors handle routine cases enables the enforcement officers to work on resolving cases involving more serious and complicated violations.

Public outreach/education

Public outreach and education consists of staff training, educating the regulated parties, developing good working relationships with other involved parties such as the cities, and making the program more understandable. Increased education of both inspectors and the regulated industry increases compliance.

Among the public outreach and education efforts will be:

- Inspector training on case development.
- Inspector training on revised test methods.
- City staff training on preparing inspection reports and notices of violation.
- On-going training at the local community college.
- Making information available on MCESD website.
- Distribution of information through city building departments and other sources.

In 2000, MCESD revised its dust control guidelines with its partners ADOT and Arizona State University. This year ADOT secured a research grant directed towards developing educational tools and outreach programs. This product will enhance the current guidelines, add information on the life cycle costs of controls and controls' impact on the construction process, and develop additional outreach tools. In addition, MCESD is currently working with two contractors to develop a model environmental management system for construction. These two

efforts will add to the technical knowledge on dust control and offer additional tools for companies to increase compliance with regulations.

Program evaluation and tracking

MCESD committed to track the number of inspections, number and type of enforcement actions, amount of penalties assessed, and amount of penalties collected. It also committed to conduct mid-year reviews of the program in September, 2000 and again in March 2001 to evaluate progress and future needs.

MCESD conducted its reviews and will conduct then again in September, 2001 and again in March 2002 to evaluate progress and future needs. In 2000, MCESD conducted 6625 inspections. In the first year of operation under the new enforcement process, it issued 189 violations, processed 145 settlement cases and netted \$425,000 in fines (May 1, 2000 to April 30, 2001).

G. Attainment Date Extension

Section 188(e) of the Act allows us to extend the attainment date for a serious area for up to five years beyond 2001 if attainment by 2001 is impracticable. However, before we may grant an extension of the attainment date, the State must first:

1. apply to us for an extension of the PM-10 attainment date beyond 2001,
2. demonstrate that attainment by 2001 is impracticable,
3. have complied with all requirements and commitments

applying to the area in its implementation plan,

4. demonstrate to our satisfaction that its serious area plan includes the most stringent measures that are included in the implementation plan of any state and/or are achieved in practice in any state and are feasible for the area, and

5. submit SIP revisions containing a demonstration of attainment by the most expeditious alternative date practicable.

We evaluate the Maricopa County serious area plan's compliance with each of these requirements below.

1. Apply for an extension.

A state must apply for an extension and concurrently submit a SIP revision containing a demonstration that the area will attain by the most expeditious alternative date practicable. The state must provide the public reasonable notice and a hearing on the application before it is sent to EPA.

MAG, as the lead air quality planning agency for the Phoenix metropolitan area, formally requested an extension of the PM-10 nonattainment deadline to December 31, 2006. The documentation supporting this request is found in Chapter 10 of the MAG plan and Appendix C, Exhibit 5 of the MAG plan. MAG plan, p. 10-2. This extension request is an integral part of the MAG plan and was subject to public hearing along with the rest of the plan, including the demonstration that the area will attain the 24-hour

standard by the earliest alternative date practicable.

2. Demonstrate the impracticability of attainment by December 31, 2001

CAA section 189(b)(1)(a)(ii) and our proposed policy on extension requests require that the serious area plan must show that the implementation of BACM (as determined by our guidance) on significant sources categories will not bring the area into attainment by December 31, 2001 in order to claim that attainment by that date is impracticable.

To evaluate the impracticability of attainment by 2001, the MAG plan evaluated the impact of BACM on sources at both the West Chandler and Gilbert sites in 2001. The evaluation showed these BACM-level controls left 24-hour PM-10 levels well above the 24-hour standard at both sites in 2001, thus demonstrating attainment is impracticable by then. MAG plan, Appendix C, Exhibit 3, pp. 3-10 and 3-11.

In this demonstration, the MAG plan assumes controls only on the "permitted" sources, that is, only on those sources that receive permits from MCESD. The plan assumes that all "nonpermitted" sources--unpaved roads, vacant lots, and unpaved parking lots--are uncontrolled in 2001. MAG plan, Appendix C, Exhibit 3, pp. 3-10 and 3-11. This latter assumption does not reflect the efforts by MCESD to assure the implementation of BACM on these sources and is inconsistent with the assumptions made

for these sources in the annual standard impracticability demonstration.

To check to see if using consistent assumptions between the annual standard and 24-hour standard demonstrations would show that attainment of the 24-hour standard is practicable by 2001, we recalculated the 2001 impacts at each monitor using the control assumptions from the annual standard demonstrations and additional control information from the BMP TSD. In these recalculations, we assume that the sources at the microscale site are in full compliance with the applicable rule. See the "Extension Request - Demonstrate the Impracticability of Attainment by December 31, 2001" in the EPA TSD.

Our recalculations show that attainment of the 24-hour standard at the West Chandler site remains impracticable by 2001. The principal sources at this site are an agricultural field, its apron, and a construction site. The site needs substantial reductions, in excess of 50 percent, in agricultural emissions in addition to controls on the construction site before the 24-hour standard can be attained. This level of emission reduction from agricultural sources is not expected until 2006.

However, our recalculations show that attainment of the 24-hour standard at the Gilbert site is practicable by 2001. The site's primary source, an unpaved parking lot, is subject to full control under Rule 310.01 by 2001 and controls on this source

together with controls on the other major source at Gilbert, a vacant lot (also required by Rule 310.01) result in the site showing attainment by 2001.

In order to show attainment, a plan must show attainment at each location within the nonattainment area. Because the West Chandler site is still unable to show attainment of the 24-hour standard by 2001, the Phoenix nonattainment area as a whole is unable to show attainment by that date. Thus the MAG plan's conclusion that attainment of the 24-hour standard in the Phoenix area is impracticable by December 31, 2001 is correct. We, therefore, propose to find that attainment of the 24-hour standard is impracticable by December 31, 2001.

3. Complied with commitments and requirements in the SIP

We interpret this criterion to mean that the state has implemented the emissions reducing measures in the plan revisions it has submitted to address the CAA requirements in sections 172 and 189 for PM-10 nonattainment areas.

The two SIP revisions that Arizona has submitted to address PM-10 are the 1991 MAG moderate area plan and the 1997 Microscale plan.

The 1991 MAG plan includes a broad range of measures to address PM-10 including controls for constructions sites, paved road, unpaved roads, unpaved parking areas, vacant lots, and woodburning. The principal controls in this plan were Rule 310

and the County woodburning ordinances. The 1991 plan also included reasonably available control technology for stationary sources and a wide range of transportation control measures. The implementation of the measures in this plan are described in the MAG plan at pp. 10-10 to 10-25. The plan also contained a large number of commitments from the local jurisdictions to implement various measures. Most of the measures represented "business as usual" actions by the jurisdictions to do infrastructure (e.g., road) improvements, to implement existing building codes or take actions already underway for the carbon monoxide plan. MAG plan, pp. 10-13 through 10-24.

The 1997 Microscale plan focused on fugitive dust sources such as construction sites, vacant lots, unpaved roads, unpaved parking lots, and agriculture. The principal controls in this plan were improvements to the implementation of Rule 310 and coordination with the cities to improve fugitive dust control. Implementation of the measures in the Microscale plan are discussed in Maricopa County commitments, 1998 Revised Measure 6.

From available information in the MAG plan, we believe that the commitments and requirements in these earlier plans have been met. We, therefore, propose to find that the State has complied with the requirements and commitments in its implementation plan.

4. Include the most stringent measures

In our proposed policy for granting extension requests under

CAA section 188(e), we suggest a 5-step process for identifying and adopting MSM. See section V.B.4. of this preamble. This process is similar to the one we have established for determining BACM, but with one additional step, to compare the potential MSM against measures already adopted in the area to determine if the existing measures are most stringent.

The first two steps in our proposed MSM policy are to develop a detailed emissions inventory of PM-10 sources and source categories and to model to evaluate the impact on PM-10 concentrations over the standards of the various source categories to determine which are significant for the purposes of adopting MSM. The MAG plan, however, excludes no source categories of directly-emitted PM-10 from its MSM analysis and moves directly to the third step in the MSM determination, identifying potential MSM in other implementation plans or used in practice in other states for each source categories present in the Phoenix area. MAG plan, p 10-25.

To identify candidate MSM, MAG's contractor Sierra Research interviewed people knowledgeable about PM-10 controls, reviewed the documents used to develop the candidate list of BACM and obtained copies of current air quality control measures from most other States including both SIP and non-SIP measures. MSM Study, p. 1-2.

The fourth step in our proposed policy for MSM is to compare

the potential MSM for each significant source category against the measures, if any, already adopted for that source category in the local area. In the MAG plan, after a comprehensive list of candidate MSM was developed, each measure was screened against the corresponding Maricopa measure to identify those with more restrictive emission limitations, more extensive lists of affected sources, fewer exemptions, and/or one or more substantive regulatory provisions not found in the Maricopa measure.

The final step in our proposed policy for MSM is to provide for the adoption of any MSM that is more stringent than existing similar local measures and provide for implementation as expeditiously as practicable or, in lieu of providing for adoption, provide a reasoned justification for rejecting the potential MSM, i.e., why such measures cannot be feasibly implemented in the area. In the MAG plan, MSM that remained after the screening in step 4 were grouped by source category and were either included in the plan or a reasoned justification for rejecting the measure was provided. MSM study, Table 3-1, MAG plan, p. 10-46, and BMP TSD, pp. 19 to 27.

Based on our analysis of the MAG plan's provisions for identifying and adopting MSM, we propose to find that the MAG plan demonstrates to our satisfaction that it includes the most stringent measures that are included in the implementation plan

of any State, or are achieved in practice in any State, and can be feasibly be implemented in the Phoenix area.

We have discussed identification and adoption of MSM and the rejection of any MSM for each category deemed significant for BACM earlier in this preamble. The MAG plan identifies three MSMS for categories considered de minimis in the BACM analysis. These categories are cattle feed lots, incinerators, and charbroilers.

Cattle feed lots: MCESD Rule 310.01 requires that owners/operators of commercial feedlots and/or livestock areas apply dust suppressants, apply gravel, or install shrubs and/or trees within 50 to 100 feet of animal pens. The MAG plan identifies South Coast Rule 1186 requirements for livestock operations as a potential MSM for commercial feedlots/livestock areas. However, the two rules control different emission activities at commercial feedlots/livestock areas. South Coast Rule 1186 requires controlling unpaved roads and hay grinding at dairy and horse farms but does not address fugitive dust emissions from disturbed open areas. MCESD Rule 310.01 controls fugitive dust emissions from disturbed open areas at dairies and cattle lots but not unpaved roads and hay grinding.

In the Maricopa County PM-10 nonattainment area, there is only one cattle feedlot and fewer than 80 dairies (most of which are actually outside the nonattainment area). Unpaved roads at

dairies are low travel (10 to 20 ADT) and represent a very small source of emissions in the Phoenix area and controls on them would not advance the attainment date and are not necessary for expeditious attainment. We, therefore, propose to find that the MAG plan provides for the implementation of MSM to our satisfaction without Rule 1186 provisions for unpaved roads at cattle feed lots.

In Maricopa County, hay grinding activities occur primarily at feed mills (as opposed to dairies) which are permitted sources and thus already subject to control requirements.

Incinerators: The MAG plan identifies Clark County's Rule 26 as having a more stringent opacity limit than MCESD's Rule 313. Clark County limits opacity from existing incinerators to 5 percent while Maricopa's limit is 20 percent. MAG plan, Table 10-7. Incinerators are a very small source in the Phoenix nonattainment area. In 1994 there were 32 incinerators that together emitted 2.56 metric tons per year (7.1 kg per day). 1994 Regional PM-10 Inventory, p. 4-17. Since then, the medical waste incinerators in this category have shut down and today there are even fewer emissions. Because incinerators are a trivial source and controls on them would not advance the attainment date and are not necessary for expeditious attainment, we propose to find that the MAG plan provides for the inclusion of MSM to our satisfaction without including Clark County's

opacity limit for incinerators.

Charbroiling: Emissions from charbroiling and frying meat are estimated to be 0.6 mtpd or 227 mtpy. 1994 Regional PM-10 Inventory, p. 4-25. This is 0.4 percent of the daily directly-emitted PM-10 inventory in 1994 and 0.4 percent of the annual inventory in 1994. MCESD has committed to develop a new rule to require existing and new chain-driven and underfired charbroilers, typically found in restaurants specializing in grilled meat products, to be equipped with emission control equipment. South Coast AQMD is developing a new rule to deal with underfired charbroilers and MCESD will wait until South Coast completes its rulemaking, now scheduled for late 2001, to adopt this measure. Maricopa County commitments, Revised Measure 23. We propose to find that implementation of this rule is expeditious. Waiting on South Coast to complete its rulemaking, which will establish control requirements for underfired charbroilers, is appropriate given that the South Coast rule when adopted will establish MSM for controls on these types of charbroilers.

5. Demonstrate expeditious attainment

For the reasons discussed below, we propose to find that the MAG plan demonstrates attainment by the earliest date practicable after December 31, 2001 as required by CAA section 189(b)(1)(A)(ii). We also propose to find that the attainment

demonstration relies on control measures that either are approved or have been proposed for approval and meet our SIP enforceability criteria; that the emissions estimates credited to these measures in the attainment demonstration are reasonable; and the measures are being implemented on a schedule that is as expeditious as practicable and will result in attainment by the earliest practicable date.

The following is a brief summary of our evaluation of the modeling in the MAG plan. Our full evaluation is in the EPA TSD section "Extension Request-Demonstrate Attainment by the Most Expeditious Alternative Date Practicable after December 31, 2001."

a. Air quality modeling

The attainment demonstration for the 24-hour standard is divided into two parts, a microscale analysis and a regional analysis. The microscale part evaluates 24-hour exceedances at four monitoring sites in the Phoenix area using a version of the industrial source complex (ISC) model. The regional part evaluates 24-hour levels throughout the rest of the Maricopa County nonattainment area using the Urban Airshed Model-Linear Chemistry version (UAM-LC).

As discussed previously, Arizona has made three submittals that contain elements of the attainment demonstration for the 24-hour PM-10 standard: the 1997 Microscale plan, the 2000 revised

MAG plan, and the 2001 BMP TSD. A more complete description of these submittals can be found in section 2 of this preamble and in section 1 of the EPA TSD. We briefly describe here how these submittals fit together to create the overall attainment demonstration for the 24-hour standard

The first of the three submittals, the 1997 Microscale plan, contains a microscale, or localized, inventory and modeling analysis using the ISCST model of 24-hour standard exceedances at four monitoring sites in the Phoenix area: Maryvale, Salt River, West Chandler and Gilbert. It shows attainment of the standard at the Maryvale and Salt River sites but does not demonstrate attainment for the Gilbert and West Chandler sites, both of which were substantially affected by agricultural sources.⁴⁰

The second submittal, the 2000 revised MAG plan contains a regional modeling analysis of 24-hour standard exceedances using UAM-LC. It also uses the ISCST model to determine that a 58 percent reduction in agricultural emissions is needed to attain the 24-hour standard at the West Chandler site and 20 percent at the Gilbert site.⁴¹ However, at the time of its submittal,

⁴⁰ Because we have already approved the attainment demonstrations at the Maryvale and Salt River sites, we do not further discuss these sites in this proposal. See 62 FR 41856, 41863.

⁴¹ See p. 3-9 in ADEQ, "Evaluation for Compliance with the 24-hour PM-10 Standard for the West Chandler and Gilbert Microscale Sites," June 1999 (ADEQ TSD), found in Appendix C, Exhibit 3 of the MAG plan.

Arizona had not yet completed adoption of its BMP general permit rule and also had not yet quantified the expected reductions from rule and thus was unable to model the impact of the rule at these two sites.

The third submittal, the 2001 BMP TSD, documents the expected emission reductions from the BMP general permit rule. This submittal does not contain new modeling but rather shows that the rule's emission reductions, together with a reasonable estimate of land use change, provide greater reductions than needed for attainment at the Gilbert and West Chandler sites.

1. Modeling Approach to the 24-Hour PM-10 Standard Attainment Demonstration

Our guidance on attainment demonstrations generally assumes that the entire nonattainment area will be modeled using a dispersion model.⁴² However, emissions inventory development and modeling for areas with substantial fugitive dust problems, such as the Phoenix area, have proved difficult, because of fugitive dust emissions' marked uncertainty and their temporal and spatial variability. Accurately estimating emissions for input to dispersion modeling of fugitive dust over a large area is much more difficult than for point sources of

⁴² A dispersion model models how emissions from sources are dispersed into the atmosphere based on local wind patterns and speeds and other meteorological parameters. The two principal inputs into a dispersion model are temporally- and spatially-distributed emissions and meteorological information.

gaseous pollutants, which were the archetypes for development of much of our modeling guidance.

Thus, in areas dominated by fugitive dust sources, the approach of intensively inventorying and modeling a small area is a reasonable one. This approach is also more reflective of the nature of fugitive dust. Fugitive dust PM-10 is emitted near ground level and has relatively sharp spatial gradients as dust settles out with distance from the source, and hence has more localized effects than the other criteria pollutants, which are typically buoyant and gaseous.

Under the microscale approach used in the MAG plan, the areas around the exceeding monitors are deemed to be representative of locations throughout the nonattainment area. Attainment is demonstrated at locations representing the various mixes of emission sources that occur in the area. Although a specific emitting activity, such as new housing construction, will eventually decline in a given location, it will reappear elsewhere as the metropolitan area grows. A location that is currently experiencing a lot of construction can thus be used to represent locations where construction will occur in the future. Moreover, in the MAG plan all locations exceeding the 24-hour PM-10 standard in 1995 were subjected to analysis. A demonstration of attainment at these locations will show that the mixes of sources that caused exceedances in the Phoenix area will be

controlled sufficiently to meet the standard.

Although there is solid reasoning underpinning the microscale approach in a fugitive dust-dominated area such as Phoenix, there is concern that for a large urban area the sheer number of sources, especially fugitive dust area sources, could make for a pervasive regional component of PM-10 in addition to the more localized or microscale component. Additionally, a portion of PM-10 is fine particles, which can stay suspended longer and so can be transported greater distances than coarse particulate.

Fine particulate includes secondary particulate, which forms chemically in the air from precursors like ammonia and oxides of sulfur and nitrogen. Secondary particulate is formed by chemical reactions in a mixture of emissions from various sources, spread over hours and a spatial scale of 10's of kilometers. Like ozone, it is a regional pollutant, and so needs to be modeled on a larger scale. Although only a small fraction (4 percent) of the total PM in the Maricopa area, secondary particulate is present. While this regional component could partly be addressed by adding a background concentration to microscale modeling, the determination of a background is ambiguous since it includes the effect of sources similar to those in the microscale domain. For these reasons, the MAG plan include regional modeling in addition to the microscale analysis.

2. EPA's Review of the Air Quality Modeling in the MAG Plan

In today's proposal, we focus our discussion on the supplemental microscale modeling for the Gilbert and West Chandler sites in the ADEQ TSD and the evaluation of the agricultural general permit rule in the BMP TSD. We have already extensively reviewed both the microscale modeling and the regional modeling in previous proposals and found them acceptable. See our proposal on the Microscale plan at 62 FR 31025, 31029 and the proposal on the annual standard at 65 FR 19964, 19985.⁴³ See also the EPA TSD section on "Extension Request-Demonstrate Attainment by the Most Expeditious Alternative Date Practicable after December 31, 2001."

The approach used for the supplemental modeling in the ADEQ TSD is essentially the same approach used in the Microscale plan. They differ in just three ways. First, the ADEQ TSD uses a new calculation of background concentrations (that is, the impact on ambient PM-10 levels in the microscale area of sources outside the microscale area). Second, it evaluates PM-10 concentrations at multiple locations within the microscale domain. Finally, it

⁴³ For the regional model, 65 individual days were analyzed in the base year and attainment year, that is, MAG ran the UAM-LC model for each of these 65 24-hour days. To evaluate the 24-hour standard, the individual results from each one of these modeling runs are used. To evaluate the annual standard, the results from all the modeling runs for each year are averaged together. Thus, in reviewing the modeling for the annual standard demonstrations, we necessarily also reviewed the modeling for the regional 24-hour standard demonstrations.

evaluated various levels of reductions from agricultural controls, in order to determine the emission reductions needed for attainment.

New background values were calculated in order to reflect the regional implementation of controls. These controls reduce the contribution to ambient PM-10 levels in the microscale area of sources outside the microscale area. To recalculate the background values, ADEQ split the background between windblown and non-windblown contributions, applying controls only to the windblown contribution. See ADEQ TSD, p. 3-7.

The evaluation of PM-10 concentrations at multiple locations within the microscale area is an improvement to the previous microscale modeling. In the Microscale plan, the evaluation was limited to the actual location of the ambient air quality monitor within the microscale domain.

The evaluation of the emissions reductions needed for attainment in 2006 at the West Chandler site (assuming a 90 percent level of control on the construction site) showed that a 58 percent reduction in emissions from agricultural aprons and fields was needed. For the Gilbert site, a 20 percent emission reduction is shown to be needed from the agricultural apron. ADEQ TSD, pp. 3-9.

The BMP TSD shows that BMP general permit rule, together with a reasonable estimate of land use changes, provide a 60.3

percent reduction by 2006. This reduction is sufficient to demonstrate attainment by 2006 at West Chandler. For the Gilbert site, the rule provides more than the 20 percent needed for attainment by 2006. BMP TSD, p. 9.

This 60.3 percent reduction at the West Chandler site is a combination of a 36.6 percent emissions reduction from the BMP general permit and a 37 percent emissions from the conversion of agricultural land to residential and commercial use.⁴⁴ This land use conversion rate is derived from a land use model for the overall nonattainment area and represents the reduction regionally in agricultural lands between 1995 and 2006. BMP TSD p. 28.

Under the microscale approach, the areas around the exceeding monitors are deemed to be representative of locations throughout the nonattainment area. Thus, applying regionally the controls needed for attainment at these representative sites is assumed to assure attainment at similar sites throughout the nonattainment area. One aspect of this approach, which was not adequately explored in earlier submittals, is to how to treat the inevitable changes in land uses and activities within the

⁴⁴ The reductions are not additive because the BMP general permit rule reduces emissions only from the land left in agricultural production. The overall control effectiveness is calculated as the percent lost agricultural lands + BMP rule effectiveness * percent remaining agricultural lands or $37\% + 0.366 * 63\%$.

microscale domains. For example, construction activity, like that at the West Chandler site, will eventually be completed and no longer contribute to emissions in the area.⁴⁵

A land use and socioeconomic model, in conjunction with a dispersion model, could legitimately show that exceedances no longer occur in the area simply based on this change in land use. However, just waiting for land use changes alone to reduce emissions is not an acceptable method of demonstrating attainment at the individual microscale sites because once again, the premise underlying the microscale approach is that each site is representative of other similar areas in the nonattainment area. In a growing metropolitan area like that of Phoenix, there will always be areas with on-going construction.

On the other hand, the opposite extreme of assuming no conversion of agricultural lands at all does not seem reasonable either. The reality is that the metropolitan area is growing and agricultural land is rapidly being converted. Such changes have been observed over the past decades and are projected to continue.

In this situation, using an estimate from the area's land use model of the conversion of agricultural lands to occur by 2006 is a reasonable approach to use. This approach is a

⁴⁵ In fact, at the West Chandler site, the construction is complete and agricultural land has been converted to residential and commercial uses.

compromise between the extremes of the no-conversion and the total-conversion assumptions. It is driven by the area's socioeconomic projections that are used for many purposes and represent the best available information about the land use changes the overall area will experience.

Also, using an area average figure is consistent with the area wide application of control measures required under the submittal's approach. Reliably predicting the conversion for a particular small area (several square miles in the microscale approach) would be problematic in any case, since it would depend on knowing individuals' purchase decisions and development plans. Aggregate conversion figures, driven by larger economic forces and representing the average of many actions, should be more reliable.

Assuming some land use change is more in line with the traditional use of microinventories in EPA's PM-10 attainment demonstration guidance, and also is in line with how attainment demonstrations are performed in general. Typically the projections for land use, employment, industrial production, population, vehicle traffic, etc. are part of the baseline conditions assumed in projecting future air quality; in an attainment demonstration they are independent of, but used in conjunction with, estimates of control measure effectiveness. In other words, reductions that occur naturally because of

socioeconomic changes are implicitly counted in attainment demonstrations. Conversely, growth in emission sources, e.g., vehicle traffic, are also implicitly counted and must be compensated for by additional emission reductions.

In summary, we believe that the approach used in 2001 BMP TSD, while not completely consistent with how the microscale approach was implemented in the 1997 Microscale plan, nevertheless, is a reasonable balance between different possible implementations of a microscale approach. Overall, we propose to find that technical evaluation in the MAG plan is adequate to support the attainment demonstration for the 24-hour standard at the West Chandler and Gilbert sites.

b. Control measures relied on for attainment

For demonstrating attainment of the 24-hour PM-10 standard, the MAG plan relies on reductions in directly-emitted PM-10 from 3 measures: MCESD's Rules 310 and 310.01 and the agricultural BMP general permit rule. ADEQ TSD, pp. 3-3 to 3-6 and BMP TSD, p. 8. We have proposed to approve all of these measures. See 65 FR 19992, 19989 and 66 FR 34598.

As part of these proposed approvals, we have evaluated each of these measure to ensure that it meets our SIP enforceability criteria. These criteria ensure that the measure's compliance requirements--applicability, performance standards, compliance schedule, and monitoring methods--are clear. For MCESD's rules,

see sections on proposed approval of Rule 310 and 310.01 in the TSD supporting the annual standard proposal. For the agricultural general permit rule, see 66 FR 34598.

We have also evaluated the emissions reductions credited to each measure in the attainment demonstrations to ensure they are reasonable. In performing the microscale analysis, ADEQ first determined that each significant, non-agricultural source at the microscale sites (e.g., the unpaved parking lot at the Gilbert site) was large enough to be subject to Rules 310 or 310.01.⁴⁶ For each of these sources, ADEQ then applied the control factor used in the Microscale plan for that source. Except for the agricultural sources, it did not use rule effectiveness factors for either the sources in the microscale component or the sources in the windblown background component in the attainment demonstrations.

Rule effectiveness (RE) accounts for emission reductions lost because of noncompliance, control equipment downtime, failure to apply adequate controls, or failure to use control equipment properly. One hundred percent rule effectiveness is the ability of a regulatory program to achieve all the emission reductions that could be achieved by full compliance with the applicable regulations at all sources at all times. Because RE

⁴⁶ Rule 310 and Rule 310.01 do not apply to sources under a certain size. For example, Rule 310.01 does not apply to vacant lots under 0.1 acres. Rule 310.01, section 301.

factors are intended to reflect the variations in compliance among large numbers of sources, they are applied to source categories rather than to individual sources.

We agree that it is appropriate not to apply an RE factor to the individual sources at each microscale site;⁴⁷ however, we believe that an RE factor should be applied to the windblown background source categories because each category represents multiple sources. To determine the effect of applying the RE factor to sources in the windblown background, we re-evaluated the attainment demonstrations at both Gilbert and West Chandler. We found that the plan still demonstrates attainment of the 24-hour standard as expeditiously as practicable. See EPA TSD section "Extension Request-Demonstrate Attainment by the Most Expeditious Alternative Date Practicable after December 31, 2001,"

We find that the emission reduction estimates for each source category are consistent with research on the applicable control methods and are appropriately applied in the attainment demonstrations. For more information on the quantification of emission reductions from Rules 310 and 310.01 see the section "Extension Request-Demonstrate Attainment by the Most Expeditious

⁴⁷ At each microscale site, there is only a single source in each category, that is there is a single vacant lot, a single construction site, a single agricultural field with its apron, a single unpaved parking lot.

Alternative Date Practicable after December 31, 2001" in the EPA TSD for the annual standard proposal. For more information on the quantification of emission reductions from the agricultural general permit rule, see the section "Implementation of BACM and Inclusion of MSM for Agricultural Sources" in the EPA TSD for this proposal.

We have also determined that the measures relied on for attainment are being expeditiously implemented. Rule 310 and 310.01 are effective now. Implementation of the agricultural general permit rule began in July 2000 and will be completed by December 31, 2001.

6. Other factors that EPA may consider

CAA section 188(e) list five additional factors that we may consider in deciding whether to grant an extension and the length of that extension.

The MAG plan provides information addressing each of the factors in Chapter 10 of the plan. Nothing in this additional information presented on the five factors suggests that granting an extension of the attainment date for the Phoenix area to 2006 is inappropriate.

a. Nature and extent of nonattainment

In the Phoenix area, elevated 24-hour levels of PM-10 occur mainly in areas with large fugitive dust sources or with a concentration of fugitive dust sources.

Areas such as this can be found throughout the Phoenix nonattainment area, so we would expect that there are elevated 24-hour PM-10 levels throughout the Phoenix area. In order to attain the 24-hour standard in this situation, controls need to be uniformly implemented throughout the area, a task that generally requires longer to achieve than implementing controls in a few localized areas.

b. Types and numbers of sources or other emitting activities

Primary contributors to elevated PM-10 levels are fugitive dust sources including paved road dust, unpaved roads, construction activities, disturbed vacant lands, unpaved parking lots, and agricultural sources. MAG plan, p. 10-51. These sources are ubiquitous in the nonattainment area and collectively number in the thousands. For example, MCESD issued 2500 construction permits in 1999; we mailed 50,000 letters to owners of vacant lots in the nonattainment area to inform them of our FIP fugitive dust rule; there are 12,000 miles of roadway in the nonattainment area.

c. Population exposure to concentrations above the standard

The MAG plan estimates population exposure to elevated levels of PM-10 (both annual and 24-hr) to be from 78,000 to 163,000 (1995 figure), p. 10-13. This population exposure is calculated using estimates of disturbed land versus population in subareas of the nonattainment area. According to this

calculation, 84 percent of Maricopa's population lives in areas where 10 percent or less of the land is open. MAG plan, Table 10-13. However, the plan does provide for implementation of RACM, BACM, and MSM on disturbed land (including construction) and paved and unpaved roads with much of the emission reductions being achieved in the first few years. All these factors will reduce population exposure as quickly as practicable.

d. Presence and concentration of potentially toxic substances in the particulate

The primary source of airborne cancer risk in the Maricopa area is internal combustion engine exhaust from both on and nonroad engines. This risk is from all pollutants emitted from these sources (gaseous and particulate). MAG plan, p. 10-61. The MAG plan concludes that the cancer risk in the Phoenix area is comparable to that in California cities, p. 10-61. The MAG plan and other Arizona programs (e.g., cleaner burning gasoline, national emission standards for nonroad engines) target emissions from on and nonroad engines.

Almost all of the PM-10 emission reductions in the out years of the MAG plan (2003 and later) are and need to be from fugitive dust sources in order to show attainment of the 24-hour PM-10 standard and not from on- and nonroad engines; therefore, extending the attainment date does not affect the degree of public exposure to the major source of toxic risk because

shortening the extension would not accelerate controls on the major source of toxic risk, on- and nonroad engines.

e. Technological and economic feasibility of controls

Fugitive dust sources dominate the emissions inventory in the Maricopa nonattainment area and are the most significant contributors to 24-hour PM-10 exceedances. Controls for these sources are well known (paving, wetting surfaces, etc.) and have been adopted; however, the number of sources and nature of sources make education and outreach necessary to assure full compliance with those controls. In addition, costs for paving roads and other capital improvements needed to reduce PM-10 emissions are high and necessary funds are only available over a number of years. These factors generally support a longer time frame for attainment.

7. Conclusion on extension request

Based on our review of the MAG plan and our proposed determination that it meets the requirements necessary for granting an extension of the attainment date under CAA section 188(e), we are proposing to grant a five-year extension of the attainment date for the 24-hour PM-10 standard in the Phoenix PM-10 serious nonattainment area from December 31, 2001 to December 31, 2006.

H. Reasonable Further Progress and Quantitative Milestones

CAA section 172(c)(2) requires nonattainment plans to

provide for reasonable further progress (RFP). Section 171(1) of the Act defines RFP as "such annual incremental reductions in emissions of the relevant air pollutant as are required by this part [part D of title I] or may reasonable be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date."

CAA section 189(c) also requires PM-10 plans demonstrating attainment to contain quantitative milestones which are to be achieved every 3 years until the area is redesignated attainment and which demonstrate RFP. These quantitative milestones should consist of elements that allow progress to be quantified or measured. Addendum at 42016.

Reasonable Further Progress

The MAG plan provides for annual progress toward attaining the 24-hour standard. This demonstration shows that most of the projected reductions occur after 2001; however, this is an artifact of the assumption that there are no controls on agricultural sources, vacant lots and unpaved parking prior to December 31, 2001. This assumption does not reflect the efforts by MCESD to assure the implementation of BACM on these sources and the requirement for BMPs to be implemented by then. If the RFP demonstration is revised to include emission reductions from BACM on these sources, then the majority of the emission

reductions occur before 2001. See the "Reasonable Further Progress and Quantitative Milestones" section in the EPA TSD.

In order to demonstrate RFP, the plan first regionalizes the inventories at the two microscale sites by multiplying emissions from each source by a factor of 360, which is the ratio of the size of the nonattainment area (2,880 square miles) to the size of the microscale sites (8 square miles). It then calculates the emission reductions from the application of the adopted measures to these sources. Next, it annualizes these emission reductions by multiplying the sources--which are all windblown sources--by 11, the number of windy days in 1995. Finally, the annualized figure is divided by 365 days to get an average annual day emission reductions. See BMP TSD, pp. 29 - 31.⁴⁸

Regionalizing and annualizing the microscale inventories is a good approach to demonstrating RFP and establishing milestones for the 24-hour standard in the Phoenix area. Just a few source categories are explicitly identified contributors to exceedances of this standard, and it is effective controls on these categories that are necessary for progress and attainment.

⁴⁸ There was an error in the original RFP calculation on pages 29 to 31 in the BMP TSD. ADEQ corrected this error and provided us a revised RFP and contingency measure demonstrations and quantitative milestones in a letter. See letter, Jacqueline E. Schafer, ADEQ, to Laura Yoshii, EPA, "Addendum to June 13, 2001, Submittal of State Implementation Plan revision for the Agricultural Best Management Practices program in the Maricopa County PM-10 Nonattainment Area," September 7, 2001 ("ADEQ RFP Addendum Letter")

Therefore, closely tracking the effect of those controls on these source categories is essential. Regionalizing and annualizing the microscale inventories allows this to be done.

The plan does not provide emission reduction information for each year between the base modeling year of 1995 and the attainment year of 2006. We do not believe that this level of detail is necessary or meaningful given the evidence that progress is being made over time and the implementation of controls are not being delayed. Therefore, we propose to find that the MAG plan provides for "such annual incremental reductions in emissions of the relevant air pollutant as are required by this part [part D of title I] or may reasonably be required by the Administrator for the purpose of ensuring attainment of the [24-hour PM-10] national ambient air quality standard by the applicable date" as required by section 172(c)(2) of the Act.

Quantitative Milestones

Quantitative milestones based on regionalized and annualized microscale inventories are provided for 2001, 2003, and 2006. See RFP Addendum Letter, Enclosure 2. These are the same milestone years used for the annual standard. See 65 FR 19964, 19988. The assumptions regarding control measures' implementation and effectiveness that underlie the quantitative milestones are reasonable and consistent with the RFP

demonstration.

The plan does not provide milestones for each of the two microscale sites. Milestones are intended as checks along the way, a means of judging actual emission reductions and control measure implementation against those projected in the plan. Arguably, given the microscale analysis that is the basis for the Phoenix area's 24-hour standard plan, quantitative milestones should be established for both the West Chandler and Gilbert sites. However, this approach would actually defeat the purpose of the quantitative milestones rather than fulfill it.

In order to report on a quantitative milestone at the microscale sites, Arizona would need to evaluate the implementation of controls at each site. However, land uses and activities around each of these microscale sites have changed significantly since 1995. For example, at the West Chandler site, the road construction has been completed and the agricultural field and its apron have been converted into stores. Thus, reporting on each site's quantitative milestones would tell us more about the land use changes around each site than about the implementation of controls. Because of this, the quantitative milestones for the 24-hour plan need to reflect regional implementation of controls. The MAG plan's approach of regionalizing and annualizing the emissions inventories from the microscale sites and then basing its RFP demonstration and

milestones on the resulting inventory is an appropriate way to deal with these requirements for the 24-hour standard.

For these reasons, we propose to find that the MAG plan meets the quantitative milestone requirement in CAA section 189(c)(1) for the 24-hour standard.

I. Contingency Measures

Section 172(c)(9) of the Clean Air Act requires that implementation plans provide for the implementation of specific measures to be undertaken if the area fails to make RFP or attain by its attainment deadline. These contingency measures are to take effect without further action by the State or the Administrator. The Act does not specify how many contingency measures are necessary nor does it specify the level of emission reductions they must produce.

We interpret the "take effect without further action by the State or the Administrator" to mean that no further rulemaking actions by the State or EPA would be needed to implement the contingency measures. Addendum at 42015.

The purpose of contingency measures is to ensure that additional emission reductions beyond those relied on in the attainment and RFP demonstrations are available if there is a failure to make RFP or attain by the applicable attainment date. These additional emission reductions will assure continued progress towards attainment while the SIP is being revised to

fully correct the failure. To ensure this continued progress, we recommend that contingency measures provide emission reductions equivalent of one year's average increment of RFP. Addendum at 42016.

Certain core control measure requirements such as RACM, BACM, and MSM may result in a state adopting and expeditiously implementing more measures than are strictly necessary for expeditious attainment and/or RFP. Because of this and because these core requirements effectively require the implementation of all non-trivial measures that are technologically and economically feasible for the area, states are left with few, if any, substantive unimplemented control measures. In fact, under the Act's PM-10 planning provisions, if there were a measure or set of measures that were technologically and economically feasible and could collectively generate substantial emission reductions, e.g., one year's worth of RFP, then a state would be hard pressed to justify withholding their implementation.⁴⁹

If we read the CAA to demand that the only acceptable contingency measure are those that are adopted but not implemented, then states face a difficult choice: adopt the controls for immediate implementation and clearly meet the core control measure requirements but fail the contingency measure

⁴⁹ We do not believe that States are obligated by section 172(c)(9) to adopt infeasible or unreasonable measures or measures that individual or collectively have trivial benefit.

requirement or adopt the control measures but hold implementation in reserve to meet the contingency measure requirement but potentially fail the core control measure requirements.

However, states do not need to face this difficult choice if we read the CAA to allow adopted and implemented measures to serve as contingency measures, provided that those measures' emission reductions are not needed to demonstrate expeditious attainment and/or RFP. There is nothing in the language of section 172(c)(9) that prohibits this interpretation. This approach to the contingency measure requirement also has the benefit of allowing states to build uncredited cushions into their attainment and RFP demonstrations, which makes actual failures to make progress or attain less likely, while still obtaining the air quality and public health benefits from the implemented measures.

We have allowed this approach, which is effectively the early implementation of contingency measures, in ozone and carbon monoxide plans. See memorandum, G. T. Helms, Chief, Ozone/Carbon Monoxide Programs Branch, OAQPS to Air Branch Chiefs, Regions I-X, "Early Implementation of Contingency Measures for Ozone and Carbon Monoxide (CO) Nonattainment Areas," August 13, 1993. In this memorandum, we note that several states wished to implement their contingency measures early even though they were not need for their attainment or RFP demonstrations and that "[i]t seems

illogical to penalize nonattainment areas that are taking extra steps to ensure attainment of the NAAQS by having them adopt additional [replacement] contingency measures now." This rationale applies with equal force to PM-10 plans.

Annual Standard

The revised MAG plan as submitted in February 2000 identifies 5 measures as contingency measures with a collective emission reduction of 5.5 mtpd: the agricultural BMP general permit rule, off-road engine standards, the clean burning fireplace ordinance, and additional dust controls from the cities of Tempe and Phoenix. MAG plan, p. 8-19.

Since the MAG plan was submitted, Arizona has made changes to its contingency measure package for the annual standard. First, Arizona has withdrawn its commitment to adopt California's off road vehicle standards because the federal nonroad program produces essentially the same emission reductions. ADEQ Off-Road Letter. Second, the emission reductions from the agriculture contingency measure have been recalculated based on the BMP general permit rule as adopted. The emission reductions from the revised contingency measures package are now 6.9 mtpd. See EPA TSD "Contingency Measures" for more details on the emission calculations.

All the measures that have been identified in the MAG plan as contingency measures have been adopted and are being

implemented but are not credited in the attainment, RFP or milestone demonstrations for the annual standard and are not necessary to demonstrate expeditious attainment of that standard. Under our applicable policies, states are allowed to use implemented but uncredited measures as contingency measures.

Under our contingency measure policy, we recommend contingency measures have total emission reductions equal to or more than the annual RFP increment. For the Phoenix area, the average annual increment in RFP for the annual standard is 5.5 mtpd/year for the full 11 year period, 1995 to 2006. See EPA TSD, "Reasonable Further Progress and Quantitative Milestones." Collectively, the specified contingency measures generate 6.9 mtpd.

Based on this analysis, we propose to find that the MAG plan provides for the implementation of contingency measures for the annual standard as required by CAA section 172(c)(9).

24-Hour Standard

The identified contingency measure for the 24-hour standard is controls for unpaved roads and alleys. BMP TSD, p. 30. This measure comprises not only the unpaved road provisions in MCESD Rule 310.01 but also the commitments by local jurisdictions to control unpaved roads. See MAG plan, pp. 7-75 to 7-94. This measure is estimated to reduce emissions by 12.19 mtpd in 2006. MAG plan, p. 8-9. The average annual increment in RFP for the

24-hour standard is 10.9 mtpd/year. See ADEQ RFP Addendum Letter, Enclosure 1.

The unpaved road measure that is identified in the MAG plan as contingency measure for the 24-hour standard has been adopted and is being implemented but is not credited in the attainment, RFP or milestone demonstrations for the 24-hour standard and is not necessary to demonstrate expeditious attainment of that standard. Under our applicable policies, states are allowed to use implemented but uncredited measures as contingency measures.

Based on this analysis, we propose to find that the MAG plan provides for the implementation of contingency measures for the 24-hour standard as required by CAA section 172(c)(9).

J. General SIP Requirements

Section 110(a)(2)(E)(i) of the Clean Air Act requires that implementation plan provide necessary assurances that the State (or the general purpose local government) will have adequate personnel, funding and authority under State law. Requirements for legal authority are further defined in 40 CFR part 51, subpart L (§ 51.230-232) and for resources in 40 CFR § 51.280.

States and responsible local agencies must demonstrate that they have the legal authority to adopt and enforce provisions of the SIP and to obtain information necessary to determine compliance. SIPs must also describe the resources that are available or will be available to the State and local agencies to

carry out the plan, both at the time of submittal and during the 5-year period following submittal of the MAG plan.

Other than revisions to Maricopa County's revised commitments to improve Rule 310, we are not proposing to approve any control measures in this proposal. All commitments and rules relied on in the MAG plan to meet the CAA requirements for the 24-hour PM-10 standard are already approved, were proposed for approval in the annual standard proposal, or proposed for approval in a subsequent notice. In these notices, we have already proposed to find that the implementing agencies for the MAG plan have adequate resources for implementing their respective commitments and provided an opportunity for comment. We are not reproposing these findings.

Finally, we initially proposed to find in the annual standard proposal that all agencies and jurisdictions have adequate authority under Arizona state law to implement their respected commitments and, where applicable, to obtain information necessary to determine compliance. 65 FR 19964, 19989. While minor changes have been made to several control measures (e.g., the remote sensing program), the State continues to have adequate authority to implement the measures. No other changes have been made to the any agencies and/or jurisdictions authority since we proposed the annual standard.

Section 110(a)(2)(C) requires SIPs to include a program to

provide for the enforcement of SIP measures. The implementing regulation for this section is found at 40 CFR §51.111(a) and requires control strategies to include a description of enforcement methods including 1) procedures for monitoring compliance with each of the selected control measures, 2) procedures for handling violations, and 3) the designation of the agency responsible for enforcement.

The principle control measures in the plan are MCESD's Rules 310 and 310.01 and the BMP General Permit. Procedures for monitoring compliance (i.e., the inspection strategy) with these rules are described in Maricopa County's commitments and the BMP TSD. See Maricopa County commitment, 1999 Revised Measure 6 and BMP TSD, pp 33-34.

Based on the review of MCESD's enforcement procedures, we propose to find that the MAG plan adequately provides for the enforcement of the principle measures relied on for attainment and that the plan includes an adequate description of enforcement methods as required by our regulations.

Section 110(a)(2)(E)(iii) requires SIPs to include necessary assurances that where a State has relied on a local or regional government, agency or instrumentality for the implementation of any plan provision, the State has responsibility for ensuring adequate implementation of the such plan provision.

We have previously found that Arizona law includes the

necessary assurances that where a State has relied on a local or regional government, agency or instrumentality for the implementation of any plan provision, the State has responsibility for ensuring adequate implementation of the such plan provision. 60 FR 18010, 18019 (April 10, 1995).

VII. CAA Requirements for BACM and Attainment Date Extension and EPA's Guidance on Meeting these Requirements

A. Implementation of Best Available Control Measures

Under section 189(b)(2), serious area PM-10 plans must provide assurances that BACM will be implemented in the area no later than four years after the area is reclassified as serious. For Phoenix, the BACM implementation deadline was June 10, 2000.

The Act does not define what level of control constitutes a BACM-level of control. In guidance, we have defined it to be, among other things, the maximum degree of emission reduction achievable from a source or source category which is determined on a case-by-case basis, considering energy, economic and environmental impacts. Addendum at 42010. This level of control is dependent on the deadline by which BACM must be implemented.⁵⁰

⁵⁰ We have long held that an otherwise available measure is reasonable and thus not an available measure if it cannot be implemented on a schedule that will advance the attainment date. See, for example, 57 FR 13498, 13560 (April 16, 1992). See, also Delaney v. EPA 898 F.2d 695 (9th Cir. 1990) which required the adoption of "all available control measures" to attain "as soon as possible" and not simply all available control measures. The most clear example of this is a measure that cannot be implemented until after the applicable attainment date.

We also considered a BACM-level control as going beyond existing RACM-level controls, such as expanding use of RACM (e.g., paving more miles of unpaved roads). Addendum at 42013. Additionally, we believe that BACM should emphasize prevention rather than remediation (e.g., preventing track out at construction sites rather than simply requiring clean up of tracked-out dirt). Addendum at 42013.

BACM is a best available control measure. A control measure is a combination of a statement of applicability and the control requirement, that is, what sources in the category are subject to the measure and what the measure require the sources to do to reduce emissions.⁵¹ Both these elements must be specified before the measure's level of control (i.e., its stringency) can be determined, thus in setting out a BACM, a state must specify both the measure's control requirement and its applicability. The control requirement alone is not sufficient.

BACM must be applied to each significant (i.e., non-de minimis) source category. Addendum at 42011. In guidance, we have established a presumption that a "significant" source category is one that contributes 5 $\mu\text{g}/\text{m}^3$ or more of PM-10 to a

⁵¹ An example: a measure requires all unpaved roads with ADT over 150 be stabilized by either paving, graveling, or treating with chemical stabilizers. The control requirement here is "stabilize using one of these three methods: paving, graveling, or chemical stabilization" and the applicability is "all unpaved roads with ADT over 150."

location of 24-hour violation. Addendum at 42011. However, whether the threshold should be lower than this in any particular area depends upon the specific facts of that area's nonattainment problem. Specifically, in areas that are demonstrating attainment by December 31, 2001, it depends on whether requiring the application of BACM on source categories below a proposed de minimis level would meaningfully expedite attainment. In areas that are claiming the impracticability of attainment by December 31, 2001, it depends upon whether requiring the application of BACM on source categories below a proposed de minimis level would make the difference between attainment and nonattainment by the serious area deadline of December 31, 2001.⁵²

The recent decision by the Ninth Circuit Court of Appeals in Ober v. Whitman 243 F.3d 1190 (9th Cir. 2001) (Ober II) supports the use of a de minimis exemption in BACM analyses. Ober II was a challenge to our 1998 PM-10 moderate area FIP for the Phoenix area in which we exempted from the RACM requirement, source

⁵² This principle is best illustrated by an example: In Area A, attainment of the 24-hour standard by December 31, 2001 requires that PM-10 ambient levels at exceeding locations be reduced by 40 $\mu\text{g}/\text{m}^3$ to 150 $\mu\text{g}/\text{m}^3$. After application of BACM to all source categories above the proposed de minimis level, PM-10 levels are reduced by 32 $\mu\text{g}/\text{m}^3$. BACM on the proposed de minimis source categories would reduce levels by a further 3 $\mu\text{g}/\text{m}^3$, but still leaves ambient levels 5 $\mu\text{g}/\text{m}^3$ short of the reduction needed to show attainment. Since application of BACM to the proposed de minimis source categories still leaves ambient levels above the attainment level of 150 $\mu\text{g}/\text{m}^3$, the proposed de minimis level is appropriate.

categories with de minimis impacts on PM-10 levels. In the FIP, we established a de minimis threshold of 1 $\mu\text{g}/\text{m}^3$ for the annual standard and 5 $\mu\text{g}/\text{m}^3$ for the 24-hour standard, borrowing these thresholds from our new source review program for attainment areas to as a starting point in the de minimis analysis. In evaluating the appropriateness of these thresholds, we showed that they did not eliminate controls that would make the difference between attainment and nonattainment by the applicable attainment deadline, and therefore were the appropriate thresholds. See 63 FR 41326, 41330 (August 3, 1998).

In its ruling, the court held that we have the power to make de minimis exemptions to control requirements under the Clean Air Act and that our use of the de minimis levels from the NSR program was appropriate. Ober II at 1195 and 1197. In addition, the court determined that it was appropriate for us to use, as a criterion for identifying de minimis sources, whether controls on the sources would result in attainment by the attainment deadline. Ober II at 1198. Ober II dealt with a de minimis exemption from the RACM requirement, but its reasoning applies equally to the BACM requirement.

We have outlined in our guidance a multi-step process for identifying BACM. Addendum at 42010-42014. The steps are:

1. develop a detailed emissions inventory of PM-10 sources and source categories,

2. model to evaluate the impact on PM-10 concentrations over the standards of the various sources and source categories to determine which are significant,
3. identify potential BACM for significant source categories including their technological feasibility, costs, and energy and environmental impacts when it bears on the BACM determination, and
4. provide for the implementation of the BACM or provide a reasoned justification for rejecting any potential BACM.

B. Extension of the Attainment Date beyond 2001

Section 188(e) of the Act allows us to extend the attainment date for a serious area for up to five years beyond 2001 if attainment by 2001 is impracticable. However, before we may grant an extension of the attainment date, the State must first:

1. apply to us for an extension of the PM-10 attainment date beyond 2001,
2. demonstrate that attainment by 2001 is impracticable,
3. have complied with all requirements and commitments applying to the area in its implementation plan,
4. demonstrate to our satisfaction that its serious area plan includes the most stringent measures that are included in the implementation plan of any state and/or are achieved in practice in any state and are feasible for the area, and
5. submit a demonstration of attainment by the most

expeditious alternative date practicable.

5. the technological and economic feasibility of various control measures.

We may grant only one extension for an area and that extension cannot be for more than 5 years after 2001; that is, the extended attainment date can be no later than December 31, 2006. CAA section 188(e).

We first presented our preliminary interpretation of the attainment date extension provision in our proposed approval of the annual standard provisions in the MAG plan. See 66 FR 19992, 19967. Based on comments we received on it during that proposal's comment period, we have clarified certain aspects of the policy but have made no substantive changes to it. We will provide our full response to comments received on the annual standard proposal when we take final action.

This interpretation is our preliminary view of the section 188(e) requirements and we again request comment on it. We emphasize that these are our preliminary views and they are subject to modification as we gain more experience reviewing extension requests from other areas.

In the following sections we discuss the five requirements a State must meet before we can consider granting an attainment date extension.

1. Apply for an attainment date extension

Under CAA section 188(e), a State must apply for an extension of the attainment deadline. The request should be accompanied by the SIP submittal containing the most expeditious alternative attainment date demonstration required by CAA section 189(b)(1)(A)(ii). The state must be provided the public with reasonable notice and a hearing on the request before it is sent to EPA.

Extension requests are not SIP submittals per se⁵³ and are therefore not subject to the requirements of the Clean Air Act and our regulations for public notice and hearing on SIP revisions. However, because they can greatly affect the content and ultimate approvability of a serious area PM-10 SIP, we believe a state must give the public an opportunity, consistent with the requirements for SIP revisions, to comment on an extension request prior to submitting it to us.

2. Demonstrate that attainment by 2001 is impracticable

In order to demonstrate impracticability, the plan must show that the implementation of BACM on significant (that is, non-de minimis) source categories will not bring the area into

⁵³ This is clear from the wording of section 188(e) which makes a distinction between the application for an extension and the SIP revision that must accompany it: "at the time of the such application, the State must submit a revision to the implementation plan that includes a demonstration of attainment by the most expeditious alternative date practicable." This attainment demonstration is the one required by section 189(b)(1)(A)(ii).

attainment by December 31, 2001. In serious areas, BACM is required to be in place in advance of the 2001 attainment date; therefore, we believe that it is reasonable to interpret the Act to require that a state provide at least for the implementation of BACM on significant source categories before it can claim impracticability of attainment by 2001.⁵⁴ This interpretation parallels our interpretation of the impracticability option for moderate PM-10 nonattainment areas in section 189(a)(1)(B). In moderate areas, RACM was required before a moderate area plan could claim impracticability of attainment by 1994, the moderate area attainment date. See 57 FR 13498, 13544 (April 16, 1992). The Ober II court found this approach reasonable. Ober II at 1198.

The statutory provision for demonstrating impracticability requires that the demonstration be based on air quality modeling. See section 189(b)(1)(A). We have established minimum requirements for air quality modeling. See discussion on air quality modeling later in this TSD.

3. Have complied with all requirements and commitments in its implementation plan

⁵⁴ As described in the section on the BACM requirement, if applying BACM-level controls to one or more of the proposed de minimis source categories would result in attainment by December 31, 2001, then those categories are not de minimis (i.e., they are significant) and must have BACM applied to them. Therefore, states cannot use the de minimis exemption to BACM to avoid applying controls that would result in attainment by 2001.

We interpret this criterion to mean that the state has implemented the emission reducing measures in the plan revisions it has submitted to address the CAA requirements in sections 172 and 189 for PM-10 nonattainment areas.

The purpose of this criterion is to assure that a state is not receiving additional time to attain because it failed to implement already-adopted or already-committed-to control measures. Given this purpose, we believe our review under this criterion should be limited to the implementation status of control measures from earlier PM-10 plans and not be an expansive review of the implementation status of every provision in submitted implementation plans, whether or not it is an emission reducing measure.

We read this provision not to require the area have a fully approved plan that meets the CAA's requirements for moderate areas. We base this reading on the plain language of section 188(e) which requires the state to comply with all requirements and commitments pertaining to that area in the implementation plan but does not require that the state comply with all requirements pertaining to the area in the Act. For the same reason, we also read this provision not to bar an extension if all or part of an area's moderate area plan is disapproved or has been promulgated as a FIP or if the area has failed to meet a RFP milestone.

Part of determining whether a state has implemented its commitments and requirements in earlier plans is assessing whether the state retains the legal authority for them and is funding, staffing, and enforcing them at the level assumed or committed to in those plans. Thus any determination that the state has met its commitments and requirements in earlier plans is also a finding that it has retained its legal authority and has met its commitments regarding enforcement, funding, and staffing.

4. Demonstrate the inclusion of the most stringent measures

The fourth extension criterion requires the State to "demonstrate to the satisfaction of the Administrator that the plan for the area includes the most stringent measures that are included in the implementation plan of any State, or are achieved in practice in any State, and can be feasibly be implemented in the area." CAA section 188(e).

The requirement for most stringent measures (MSM) is similar to the requirement for BACM. We define a BACM-level of control to be, among other things, the maximum degree of emission reduction achievable from a source or source category which is determined on a case by case basis considering energy, economic and environmental impacts. Addendum at 42010. The Act establishes the deadline for implementing BACM as four years after an area's reclassification to serious. CAA section

189(b)(1)(A).

We propose to define a "most stringent measure" level of control in a similar manner: the maximum degree of emission reduction that has been required or achieved from a source or source category in other SIPs or in practice in other states and can be feasibly implemented in the area. A MSM then is a control measure that delivers this level of control.

The Act does not specify an implementation deadline for MSM. Because the clear intent of section 188(e) is to minimize the length of any attainment date extension, we propose that the implementation of MSM should be as expeditiously as practicable.

Given this similarity between the BACM requirement and the MSM requirement, we believe that determining MSM should follow a process similar to determining BACM, but with one additional step, to compare the potentially most stringent measure against the measures already adopted in the area to determine if the existing measures are most stringent:

1. develop a detailed emissions inventory of PM-10 sources and source categories,
2. model to evaluate the impact on PM-10 concentrations over the standards of the various source categories to determine which are significant for the purposes of adopting MSM,
3. identify the potentially most stringent measures in other implementation plans or used in practice in other states for

each significant source category and for each measure determine their technological and economic feasibility for the area as necessary,

4. compare the potentially most stringent measures for each significant source category against the measures, if any, already adopted for that source category, and
5. provide for the adoption of any MSM that is more stringent than existing similar local measures and provide for implementation as expeditiously as practicable or, in lieu of providing for adoption, provide a reasoned justification for rejecting the potential MSM, i.e., why such measures cannot be feasibly implemented in the area.

The MSM provision only requires that a state consider the best controls from elsewhere in the country for implementation in the area requesting an attainment date extension. It looks to see--and the results are completely dependent on--how well other areas have controlled their PM-10 sources. If other areas have not controlled a particular source or source category well, then the resulting level of control from the MSM will not be the maximum feasible level of control for that source or source category in the local area. Even if they have controlled them well, the resulting level of control may still not be the maximum feasible level because local conditions may allow a higher degree of control than has been achieved elsewhere.

The MSM provision does not require a state to consider if local sources or source categories can be controlled at a level greater than the most stringent level from other areas. In other words, it does not require states to determine and adopt the maximum feasible level of control that could be applied to a source or a source category given local conditions and the additional implementation time afforded by an extension.

In considering the MSM provision, the inclination is to assume that there are always better controls in other areas than there are in the local area. This assumption is unwarranted, especially for areas that have already gone through the process of identifying and adopting BACM for their significant sources in order to meet the section 189(b)(1)(B) requirement. These areas are likely to have already evaluated the best controls from other areas and either adopted them as BACM or rejected them as not feasible for their area. As a result, the likelihood of finding substantial new controls during a MSM evaluation in one of these areas is low.⁵⁵

⁵⁵ There is also an inclination to assume that the MSM requirement is the provision in section 188(e) that implements the Act's general strategy of offsetting longer attainment time frames with more stringent control and therefore, the MSM requirement must be interpreted to result in the adoption of measures more stringent than BACM. We believe, however, that this offsetting function is actually served by the CAA section 189(b)(1)(A)(ii) requirement for PM-10 plans to demonstrate attainment by the most expeditious date practicable, if attainment by 2001 is impracticable. Because we are required to grant the shortest possible extension, a state must demonstrate

The most promising universe of potential MSM in these areas is the measures that were rejected as BACM on de minimis grounds or because they could not be implemented by the BACM deadline. Therefore, we believe at minimum, more sources and source categories should be subject to the MSM analysis than were to the BACM analysis, by lowering the threshold for what is considered a de minimis source category and 2) any measures garnered from other areas that were rejected during the BACM analysis because they could not be implemented by the BACM-implementation deadline should be reviewed to see if they are now feasible for the area given the longer attainment date.

De Minimis Thresholds. What constitutes a de minimis source category for BACM is dependent upon the specific facts of the nonattainment problem under consideration. In particular, it depends upon whether requiring the application of BACM for such sources would make the difference between attainment and nonattainment by the serious area deadline. We propose to use a similar approach for judging what constitutes a de minimis source category for MSM but instead of the attainment/nonattainment test, we propose to use the test of whether MSM controls on the de minimis sources would result in more expeditious attainment.

that it has adopted the set of control measures that will result in the most expeditious date practicable for attainment. This requirement may very well require that a state adopt controls that go beyond the most stringent measures adopted or implemented elsewhere.

We would not review an MSM analysis in a plan if the plan did not demonstrate expeditious attainment since one prerequisite for granting an extension request is that the plan demonstrate attainment. Therefore, any de minimis standard for MSM that relied on the difference between attainment and nonattainment would be meaningless because no additional controls are needed for attainment beyond those already in the plan. Our responsibility under section 188(e), however, is to grant the shortest practicable extension of the attainment date by assuring the plan provides for attainment as expeditiously as practicable. Thus, one means of determining an appropriate de minimis level is to determine if applying MSM to the proposed de minimis source categories would meaningfully expedite attainment. If it did, then the de minimis level is too high, and if it did not, then the de minimis level is appropriate.

Like the RACM and BACM requirements, there is no explicit provision in the Act prohibiting an exemption from the MSM requirement for de minimis sources of PM-10 pollution. We are using here the same principles for determining when a source is considered de minimis under the MSM requirement that we used for the RACM requirement that the Ober II court upheld and thus we have constructed the de minimis exemption for the MSM requirement to prevent states from eliminating any controls on sources or source categories that alone or together would result in more

expeditious attainment of the PM-10 standards.

Technological feasibility. In the MSM analysis, a state must evaluate the application of controls from elsewhere to sources in its own area. In many cases, these sources are already subject to local control measures. In these situations, part of determining if a control is technologically feasible is determining if the new control can be integrated with the existing controls without reducing or delaying the emission reductions from the existing control. If it cannot, then we would not, in general, consider the measure to be technologically feasible for the area unless the emission benefit of the new measure is substantially greater than the existing measure.

Economic feasibility. Because cost is rarely used to justify rejection of a measure in the MAG plan, we will not attempt to establish a general guide for evaluating when a measure is economically infeasible but instead will address the issue on a case-by-case basis as needed.

Judging stringency. The stringency of a control measure is determined primarily by a combination of its applicability and its control requirement, that is, who in the source category is subject to the measure and what does the measure requires them to do to reduce emissions. When we use the term "measure" in the context of the MSM requirement, we are referring to this combination; we are not referring to just the control requirement

or to individual methods of control.

The approach we propose to use in evaluating the selection of the most stringent among multiple measures, i.e., evaluating the determination of when one control measure is more stringent than another, is:

1. If there is only a single measure applicable to a source category then we will compare the measures directly. If there are multiple control measures with diverse controls requirements applicable to a source category (e.g., tailpipe emissions are controlled through fuels, emission standards, inspection and maintenance programs, and transportation control measures) then we will compare measures with similar control requirements against one another. If several measures apply the same or very similar control requirements to a source category, that is they have the same control requirement but different applicabilities (e.g., MCESD Rule 310.01 and City and County commitments all require similar controls on unpaved roads), then will use the collective stringency of all the measures in the stringency analysis.
2. We will review all the provisions of a rule that apply to a specific type of source (e.g., all the rule provision that apply to vacant lots) as an inseparable measure. As discussed above a rule's stringency is defined by a combination of its applicability and control requirements

(as they apply to a single type of source). They are not separable elements that can be compared in isolation to another rule.⁵⁶

3. In a MSM analysis, a measure's stringency should be determined assuming that it is appropriately adopted, implemented and enforced. Thus, we will not use a measure's implementation mechanisms (e.g., rule versus commitment), funding level, compliance schedule, test method, resources available for enforcement, or other similar items as criteria for judging relative stringency.⁵⁷

A state may determine which measure or measures are most stringent either qualitatively or quantitatively. It is the state's responsibility, however, to assure that any determination is well documented and persuasive.

Once a state has identified a potential most stringent measure, it must provide for the adoption of any MSM that is more

⁵⁶ For example, South Coast Rule 403 covers vacant lots, construction sites, and agriculture among other fugitive dust sources. MCESD's Rule 310.01 covers vacant lots and Rule 310 covers construction sites. The Arizona BMP rule covers agricultural sources. Under this test we would evaluate Rule 403's provisions for vacant lots against Rule 310.01 provisions for vacant lots; Rule 403's provisions for construction sites against Rule 310's provisions for construction sites; Rule 403's provisions for agricultural sources against the BMP rule's ones.

⁵⁷ However, once a State determines a measure is a feasible most stringent measure, it must convert the measure into a legally enforceable form and provide the necessary level of resources, etc. to ensure its implementation.

stringent than existing measures and provide for implementation as expeditiously as practicable or, in lieu of providing for adoption, provide a reasoned justification for rejecting the potential MSM, i.e., why such measures cannot be feasibly implemented in the area.

Finally, we address how we view the "to the satisfaction of the Administrator" qualifier on the requirement that the State demonstrate that its plan includes the most stringent measures. The presence and wording of this qualifier indicates that Congress granted us considerable discretion in determining whether a plan in fact provides for MSM. Under the terms of section 188(e), we believe that we can still accept an MSM demonstration even if it falls short of having every MSM possible. To intuit the limits of this discretion, we again look to the overall intent of section 188(e) that we grant as short an extension as practicable and to how we have interpreted the CAA's other general control requirements, RACM and BACM.

In concrete terms, this means that when judging the overall adequacy of the MSM demonstration, we will give more weight to a failure to include MSM for source categories that contribute the most to the PM-10 problem and to the failure to include measures that could provide for more expeditious attainment and less weight to those measures for source categories that contribute little to the PM-10 problem and would not expedite attainment.

5. Demonstrate attainment by the most expeditious alternative date practicable

Section 189(b)(1)(A) requires that a serious area plan demonstrate attainment by the most expeditious date practicable using air quality modeling after December 31, 2001. This demonstration is the final criterion that must be met before we may grant an extension request.

There are two parts to reviewing a modeled attainment demonstration: evaluating the technical adequacy of the modeling itself, and evaluating the control measures that are relied on to demonstrate attainment.

We have established technical requirements for modeling PM-10 in SIP attainment demonstrations. Please see discussion later in this TSD on modeling requirements for PM-10 SIPs.

In order to evaluate the control measures relied on in the attainment demonstration to determine if:

1. We have approved it into the SIP or the State has submitted it to us for approval into the SIP.
2. It is enforceable under our SIP-enforceability standards or qualifies to be credited under our mobile source voluntary measures policy.⁵⁸

⁵⁸ Memorandum, Richard D. Wilson, Acting Assistant Administrator for Air and Radiation, to EPA Regional Administrators, 1 - 10, "Guidance on Incorporating Voluntary

3. The plan provides reasonable assurances, including funding and other resource commitments, that it will be implemented and enforced.

4. It will be implemented on the most expedient schedule practicable.

5. The emission reductions credited to it are reasonable and consistent with the implementation resources and schedule, and for any reductions coming from mobile source voluntary measures, that they do not collectively exceed 3 percent of the total reductions needed for attainment.⁵⁹

Our determination of whether the plan provides for attainment by the most expeditious date practicable will depend on whether we find that the plan provides for appropriate BACM, MSM, and any other technologically and economically feasible measures that will result in attainment as expeditiously as practicable and that these measures are implemented on an expeditious schedule.

Please see section 3 of the EPA TSD for additional discussion of our proposed interpretation of the extension requirements.

VIII. Administrative Requirements

Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)," October 24, 1997.

⁵⁹ Ibid., page 5.

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this proposed action is not a "significant regulatory action" and therefore is not subject to review by the Office of Management and Budget. For this reason, this proposed action is also not subject to Executive Order 32111, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355, May 22, 2001). This proposed action merely approves state law as meeting federal requirements and imposes no additional requirements beyond those imposed by state law. Accordingly, the Administrator certifies that this proposed rule will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.). Because this rule proposes to approve pre-existing requirements under state law and does not impose any additional enforceable duty beyond that required by state law, it does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4). This rule also does not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes, as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), nor will it have substantial direct effects on

the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132 (64 FR 43255, August 10, 1999), because it merely approves a state rule implementing a federal standard, and does not alter the relationship or the distribution of power and responsibilities established in the Clean Air Act. This proposed rule also is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997), because it is not economically significant.

In reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. In this context, in the absence of a prior existing requirement for the State to use voluntary consensus standards (VCS), EPA has no authority to disapprove a SIP submission for failure to use VCS. It would thus be inconsistent with applicable law for EPA, when it reviews a SIP submission, to use VCS in place of a SIP submission that otherwise satisfies the provisions of the Clean Air Act. Thus, the requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) do not apply. As required by section 3 of Executive Order 12988 (61 FR 4729, February 7, 1996), in issuing this proposed rule, EPA has taken the necessary steps to eliminate drafting errors and ambiguity, minimize

potential litigation, and provide a clear legal standard for affected conduct. EPA has complied with Executive Order 12630 (53 FR 8859, March 15, 1988) by examining the takings implications of the rule in accordance with the "Attorney General's Supplemental Guidelines for the Evaluation of Risk and Avoidance of Unanticipated Takings" issued under the executive order. This proposed rule does not impose an information collection burden under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Intergovernmental relations, particulate matter, Reporting and recordkeeping requirements.

AUTHORITY: 42 U.S.C. 7401 et seq.

Dated:

Laura Yoshii
Acting Regional Administrator,
Region IX